THE

# AMERICAN JOURNAL OF PHARMACY.

MAY, 1873.

## ANALYSIS OF *COPTIS TRIFOLIA*, SALISB.—GOLDTHREAD.

By Edward Z. Gross.

Condensed from an Inaugural Essay.

The essay, which was accompanied by a very good pencil drawing of the plant with flowers and fruit, first gives the botanical history, and, after some general remarks on the properties, proceeds to describe the chemical examination.

One ounce of the herb, including rhizome and roots, was coarsely ground and macerated for twenty-four hours in cold water, then transferred to a displacement apparatus and exhausted with the same menstruum, when twelve fluid-ounces were obtained. This was of a dark yellowish brown color, and had the odor and very bitter taste of the plant. Neither red nor blue litmus paper were affected by it, proving *absence of free acids or alkalies.* The presence of albumen was clearly proven by coagulation with heat.

Tincture of chloride of iron produced simply a dark coloration without precipitation, and without disappearing when heated; the infusion was likewise unaffected by solutions of gelatin and of quinia, proving the total absence of gallic and tannic acids.

The dregs in the percolator were next boiled in water a short time, strained and allowed to cool; to the filtered decoction a few drops of solution of iodine, in iodide of potassium, were added, without producing any change. *No starch.* As only a small portion of the infusion was used in the foregoing experiments, the balance was heated to boiling to coagulate the albumen, filtered and then evaporated, yielding an extract of a brownish black color, which was entirely soluble in water, and was possessed of the characteristic bitterness and odor of the plant.

Alcohol dissolved about one-third of the extract, leaving a residue possessed of a slightly bitter aftertaste. It was altogether soluble in water and gave no precipitate with a solution of iodohydrargyrate of potassium, while the alcoholic solution gave a dense one. The alcoholic solution on evaporation yielded a beautiful garnet colored extract, wholly soluble in boiling, and only partially so in cold water.

A solution of the original extract was made with water, and this solution tested for sugar by Trommer's test, when the red oxide of copper was precipitated. The test of burning was also tried, and the odor of caramel being given off, the presence of sugar was clearly proven, though the reduction in Trommer's test, taking effect more readily after the solution had first been boiled with hydrochloric acid, caused doubts as to whether in a free state or as a glucoside. It might readily be supposed in the latter state.

One ounce of the herb was macerated with ether for seven days, when it was placed in a displacement apparatus and exhausted, and the percolate, which was of a greenish black color, on spontaneous evaporation, yielded an extract of the same color, which was proven to be fatty resin by saponification when boiled with caustic potassa or soda. The resin was insoluble in water, hot or cold, but completely soluble in alcohol, and proved to be the same as that obtained by alcohol after the plant had been exhausted by boiling water. It was only partially soluble in petroleum-benzin, and had an acrid taste. While evaporating, the resin seemed to separate from the remainder of the solution, which looked like a whitish fatty oil.

*Investigation of the alcoholic tincture, and principles contained therein.*—Eight avoirdupois ounces of coptis were exhausted with alcohol, yielding a dark greenish brown tincture of intensely bitter taste. This tincture was evaporated to a comparatively small bulk, and strongly acidulated with hydrochloric acid, when a dark green resin-like precipitate was thrown down, which was separated by filtration; a sufficient quantity of water was added to the filtrate, and the alcohol driven off by heat. The addition of water caused a copious precipitation of a dark green resin-like substance, which accumulated as evaporation was continued, and assumed a dark brown and granular appearance on cooling. This, and a precipitate in every way similar which took place on further evaporation, will be noticed hereafter. The supernatant liquor, after the addition of more hydrochloric acid, was set aside for awhile and deposited a brilliant yellow mass of a

crystalline character. The mass was redissolved in hot water, and again set aside to crystallize, *Berberina*,—No. 1. The precipitate in the last detailed experiment, after the addition of more hydrochloric acid, had a somewhat crystalline structure. This was boiled in water, forming a solution of bright yellow color, and leaving a resinous mass soluble in alcohol and ether. When the solution was acidulated with hydrochloric acid, a yellow precipitate was formed, which re-dissolved when heated; this was set aside for further examination—No. 2.

The mother liquor from crystals No. 1 was heated with a view to driving off some of the acid, when a resin was precipitated similar in every respect to a deposit spoken of before. This was soluble in alcohol, of very bitter taste, and, on spontaneous evaporation, yielded an amorphous bitter mass possessed of the odor of the plant. This was examined with the crystals. After separation of the substances just mentioned from the liquor, it (the liquor) was supersaturated with carbonate of sodium, when a precipitate occurred, which, on being collected and thoroughly washed, was treated with alcohol, yielding a bright yellow tincture, which was allowed to evaporate spontaneously. The alkaline liquid was next shaken with amylic alcohol, giving to it a bright yellow or orange color, which color was readily yielded to water acidulated with sulphuric acid. As the solution of the precipitate given by carbonate of sodium on evaporation yielded no crystals, it was supposed that a sufficient excess of carb. sodium had not been used; so the acidulated solution obtained from amylic alcohol was treated with carbonate of sodium in considerable excess, when a precipitate was obtained which, on being well washed with aqua ammoniæ, became almost colorless. This was dissolved in water by the aid of hydrochloric acid, evaporated to syrupy consistence and allowed to crystallize, No. 3. The supernatant liquid from the soda precipitate was acidulated with sulphuric acid, treated with alcohol to remove sulphate of sodium, then evaporated to a small bulk, and set aside—No. 4.

*Examination of the crystalline substances.*—The crystals from Nos. 1, 2 and 4, all answered the tests peculiar to and distinguishing *Berberina*, though those of No. 4 were plainer and no doubt purer—the first being more or less contaminated with coloring matter. These tests were as follows:

Sparing solubility in ether and alcohol when cold, more soluble in ether when hot, and entirely so in boiling alcohol. They were dis-

solved by sulphuric acid, giving to the solution an olive green color; by concentrated nitric acid, a deep red coloration, evolving nitrous acid fumes. Caustic alkalies dissolve them, turning them deep brown. Their taste is extremely bitter.

The extractive was to some extent soluble in water, entirely so in alcohol; insoluble in petroleum benzin and ether. It was not precipitated from its solution by alkalies, but on being boiled with caustic potassa for a while, it combined with it. It was entirely amorphous, and its acid solution gave no precipitate with iodohydrargyrate of potassium.

The crystals, No. 3, were noticed to be different from *Berberina*, first, by their being colorless, and next by the difference in the form of the precipitate with iodohydrargyrate of potassium; berberina being flocculent while this was crystalline. This was separated from berberina by an alkali, therefore insoluble in alkalies, but proven afterwards and precipitated by them from solution; in this resembling hydrastia and oxyacanthin. Boiled with caustic potassa, it evolves the odor of ammonia, proving presence of nitrogen. It restores blue color to reddened litmus. Heated on platinum foil, it puffs up, and at length disappears. With sulphuric acid and binoxide of manganese or nitrate of potassium, it dissolves, giving sulphurous (?) acid. With cold sulphuric acid it simply dissolves, but on heating, a purplish color is produced. In this test it again resembles hydrastia. Nitric and hydrochloric acids dissolve it without change. The crystals were re-dissolved in water, in which they were freely soluble, and from the solution precipitated by ammonia. Now we have a white powder insoluble in alcohol or water.

We have thus far proven that it has the appearance and answers the tests of an organic alkaloid, and that it forms at least one crystallizable salt with an acid. From all appearances, it bears the same relation to Coptis that hydrastia does to *Hydrastis canadensis*, or berbina to *Berberis vulgaris*, and as its tests, compared with the tests characteristic of the two before-named, prove it to be *not* identical with either, I see no reason why it might not, for the present, or until further developments are made at least, be called *Coptina*. We have not had any opportunity of finding out its medical properties.

*Examination of the ashes.*—One avoirdupois ounce of Coptis was incinerated in a crucible, and the result was twenty (20) grains of ashes, which, on analysis, were found to contain silica, carbonic acid, iron, aluminium, calcium, magnesium and potassium.

From the foregoing experiments, the organic constituents of *Coptis trifolia* may be briefly summed up as follows:

Albumen, resin and fixed oil, coloring and extractive matter, ligneous matter, sugar, berberina, coptina. The herb yields from 4 to 5 per cent. of ashes, of which one-tenth is silica. This analysis, proving absence of tannic and gallic acids, the plant cannot have astringent, but simply bitter tonic properties. The bitterness of Coptis is mainly due to berberina. To such as want to use the root in a concentrated form, I would recommend the alcoholic extract as a neat and elegant preparation, containing *all* the active properties.

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## *ARCTOSTAPHYLOS GLAUCA*, LINDLEY.—MANZANITA.

By John Henry Flint.

From an Inaugural Essay.

*Arctostaphylos glauca*, one of the many manzanitas, is a small tree or shrub, indigenous to California, growing principally upon the western slope of the Sierras, and preferring dry and rocky localities. The wood is very hard, white, with a dark-red heart; the bark is reddish-brown, thin, smooth, and adheres very closely to the wood; the leaves are pale-green, and quite numerous.

A decoction of the leaves is held in high esteem by the natives in the localities where it is found, as a specific in the treatment of diarrhœa and gonorrhœa.

The following description is translated from De Candolle's "Prodromus:"

"*Arctostaphylos glauca*, Lindley. Smooth glaucous; leaves ovate-oblong, acute, coriaceous, with the base very obtuse; racemes short, compound; bracts inferior, scale-like; fruit ovate." (The fruit is usually depressed globose.)

A quantity of leaves was reduced to a coarse powder, decocted with water, the decoction strained, and the tannin removed by a solution of gelatin; to the filtrate neutral acetate of lead was added, the precipitate separated and washed.

Through the filtrate and washings, hydrosulphuric acid was passed until all the lead was precipitated; the sulphide of lead was removed by a filter, and the liquid evaporated to a soft extract, treated with alcohol, filtered and set aside.

After standing twenty-four hours a brownish-yellow mass was de-

posited, soluble in water, alcohol and ether; sparingly so in chloroform, petroleum benzin and bisulphide of carbon. Each of these menstrua was tried as a medium for obtaining crystals, but without a favorable result.

The precipitate with neutral acetate of lead was diffused in water, decomposed by hydrosulphuric acid, the sulphide of lead removed. The filtrate gave no evidence of organic matter when evaporated on platinum foil. Barium chloride gave no precipitate, but on the addition of ammonia a yellowish precipitate was thrown down, redissolved in an excess. Nitrate of silver gave a yellowish precipitate, dissolved on the addition of ammonia. No precipitate was produced with ferric chloride.

The leaves yielded 42 per cent. of soluble matter to boiling water. The amount of tannin was ascertained by volumetric analysis with solution of gelatin to be $9\frac{4}{5}$ per cent. After incinerating the air dry leaves, 6 per cent. of ashes was left as a residue, containing potassium, calcium, magnesium and iron.

A second portion of leaves was reduced to a fine powder, displaced with alcohol, the percolate evaporated to an extract, this treated with hot water, the residue separated by a filter, the solution precipitated with neutral acetate of lead, filtered and washed. Through the filtrate and washings hydrosulphuric acid was passed, the sulphide of lead was removed by a filter, and the liquid evaporated to the consistence of an extract. This was digested with ether, and the filtrate allowed to evaporate spontaneously.

After standing several days, a crystalline mass was deposited, having the appearance of white crystals diffused in a brownish-yellow coloring matter. This was proved to be very soluble in water, alcohol and ether; slightly so in chloroform, benzin and bisulphide of carbon.

A portion was treated with each of these solvents, and shaken with animal charcoal, filtered and set aside to crystallize.

When first filtered the solution was clear, but after standing a few hours re-assumed the original color (brownish-yellow).

An aqueous solution of the residue left, after treating with ether, gave the characteristic precipitate of suboxide of copper with Trommer's test for grape sugar.

A minute quantity of the crystalline product was dissolved in water, and the solution rendered alkaline by ammonia, when phosphomolyb-

dic acid produced a blue color, proving the crystals to be arbutin (Jungmann's test).

Kawalier's process for obtaining arbutin was attended with the same results.

Since my efforts have been successful in isolating arbutin, I hope to be able to investigate more thoroughly the constituents of this plant, which seem to be so closely allied to those of *Uva ursi*.

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## FLUID EXTRACT OF VALERIAN CONTAINING GLYCERIN.

Editor American Journal of Pharmacy.

*Dear Sir:* In preparing fluid extract of valerian with stronger alcohol according to the directions given in the U. S. P., I was dissatisfied with the result, which induced me to proceed to prepare a fluid extract of valerian, using as a menstruum a mixture of alcohol, glycerin and water, with a highly satisfactory result.

I proceeded according to the directions of the U. S. P., 1870, for making that class of fluid extracts which, when finished, contain four fluid ounces of glycerin.

After obtaining eighteen fluid-ounces of percolate, the next fluid-ounce which passed through was nearly colorless, and entirely destitute of the odor and taste of the root, showing that the drug was exhausted; and having reserved the first fourteen fluid-ounces, after adding a fluid-ounce of glycerin to the remaining four fluid-ounces, evaporating to two fluid-ounces, and mixing with the reserved portion, I obtained a fluid extract much richer and heavier in appearance, possessing a more powerful and much finer odor of the rhizome, and superior in every way to the officinal alcoholic preparation.

Valerian in "moderately fine powder," is better adapted for percolation with the above menstruum than the "fine powder" which is directed in the officinal formula.

I deem this mode of preparation worthy of bringing forward to your notice from its three-fold advantages, which are—

Its cheapness, when compared to the alcoholic preparation; the less amount of evaporation required, and hence it is a more speedy and consequently less troublesome way; and lastly and pre-eminently, the superiority of the preparation when completed, both in a medicinal and pharmaceutical point of view.

Yours respectfully,

*Philadelphia, April* 3, 1873. MUNROE BOND.

## MAGENDIE'S SOLUTION OF MORPHIA PRESERVED BY SULPHUROUS ACID.

The following letter of Professor C. Johnston, of Baltimore, has been kindly placed at our disposal. Mr. Jennings informs us that he uses from three to five drops of the officinal sulphurous acid to each fluidounce of Magendie's solution.

BALTIMORE, March 11, 1873.

N. H. JENNINGS, ESQ.

*My Dear Sir:* I beg to recall your attention to a suggestion I made you about two months ago in reference to the use of sulphurous acid, in procuring solution of morphia for hypodermic use.

I carried in my pocket for a month a half ounce vial of a solution, two grains to the drachm, prepared by you, and at the end of that time the fluid was clear and free from any fungous formation, the absence of which might fairly be attributed to the sulphurous acid. In use I found the solution to prove as little painful as the ordinary one of Magendie, and but very little more so than the simple watery solution.

One of the advantages resulting from the employment of sulphurous acid is the permanent freedom of the solution of morphia from sediment or growth, whereby a good supply of the solution for hypodermic use may be prepared and kept ready for a long time.

The apothecary and the physician can both estimate the benefit of this possibility. I am yours very truly,

CHRISTOPHER JOHNSTON.

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## GLYCERIN IN FLUID EXTRACTS.

BY WILLIAM C. GILL.

Extracted from an Inaugural Essay.

Sixteen troyounces of valerian root, reduced to proper form, was exhausted and made into fluid extract in the usual manner; the result was a clear reddish-brown preparation, odor and taste strong of valerian, and indicating a good extract. Another sixteen troyounces was treated, after Mr. Campbell's process, with a menstruum consisting of alcohol, three parts; glycerin, one part. The fluid extract obtained was of a very dark reddish-brown color, with the characteristic odor and taste, but to all outward appearance much stronger than

the preceding. Both preparations were labelled, dated and set aside. At the expiration of five weeks the fluid extract containing glycerin had changed to a muddy liquid, very unsightly and with considerable precipitate; the other, on the contrary, remained clear, with but a very slight precipitate. The glycerin preparation was then filtered; the filtered liquid again presenting a beautiful clear appearance, and seeming to have lost but little of its strength, and by many would have been pronounced the best preparation of the two. In this instance the glycerin served merely to dissolve the coloring matter (which it was unable afterwards to hold up), and thus placed the preparation in a false light, giving rise to what by a vulgar expression is called "strong" simply on account of its depth of color.

Similar experiments were made with buchu, cubebs, lupulin and ginger. In the first three the result was very nearly the same as with the valerian, namely, a strong-looking preparation, but one which in each instance precipitated after standing some time. In fact, with the cubebs and lupulin it was apparent that glycerin was not at all suitable, while the buchu yielded, instead of the rich green color noticed in the alcoholic fluid extract, a preparation having a brownish hue. The fluid extract of ginger made with the addition of glycerin was, however, superior to that simply made with alcohol, not only presenting a much nicer appearance, and proving on dilution to be equally as strong, but remaining permanent.

While performing these few experiments with the above well-known drugs, an order was received for fluid extract of poke root. Having previously used diluted alcohol as a menstruum, and with considerable success, we thought to improve on the same by addition of glycerin. A dark reddish-brown preparation was the result, coming up fully to our expectations; and, feeling perfectly satisfied, we placed what remained on hand after filling the order, on a shelf. On going to the bottle some three weeks after we found, on examination, the extract had gelatinized, and was in a semi-solid condition. Since then we have noticed a similar change in several other fluid extracts which were stable before glycerin was used in preparing them, yellow dock, golden seal, and elecampane being among the number.

In making the above statements we do not wish to condemn the use of glycerin in fluid extracts; on the contrary, we rather approve of it; but its indiscriminate use, as recommended by many, we do certainly disapprove of. In many cases the use of glycerin seems spe-

cially called for. In the fluid extract of senega it appears to be the only preservative; for, no matter what menstruum we use, if glycerin is omitted the preparation will precipitate, while if this liquid is used in the proportion of one-fourth to the usual menstruum, a fluid extract is obtained which will remain permanent, with but very slight precipitation, for an indefinite period.

The above observations are more of a practical than experimental nature, and are, perhaps, a little at variance with the ideas generally published; though adding nothing new to our knowledge of glycerin, they show that we must be guarded in its use, and carefully study the composition of the drug before using it as a menstruum.

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## AROMATIC ASTRINGENT SYRUPS.

By David G. Potts.

From an Inaugural Essay.

*Syrupus Acidi Tannici Aromaticus—Spiced Syrup of Tannin.*

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| | |
|---|---|
| Acidi Tannici, | gr. lxiv. |
| Cinnamomi, in fine powder, | ʒi. |
| Myristicæ, in mod. fine powder, | ʒss. |
| Glycerinæ, | fʒvi. |
| Sacchari, | ℥vii. |
| Aquæ, | fʒxxii. |
| Alcoholis Diluti, | q. s. |

Mix the aromatic powders, and, having moistened the mixture with a sufficient quantity of diluted alcohol, pack it firmly in a small glass funnel arranged for percolation, and gradually pour diluted alcohol upon it until one fluid-ounce of tincture has passed. Triturate the tannic acid first with the glycerin, and then with the water gradually added; transfer the solution to a glass flask, and boil for ten minutes, filter, passing water through the filter until the filtrate measures twenty-eight fluid-drachms. To the filtered solution add the sugar, and, having dissolved it by a gentle heat, strain while hot. Lastly, add the reserved aromatic tincture to the solution when it is cold, and mix thoroughly.

One grain to the fluid-drachm is the tannin strength of this syrup. In comparing it with others, to be subsequently mentioned, it would seem to be of less therapeutical value. My medical friends, whom I

have consulted in this dilemma, have approved of it as it is, for the reason that for children a powerful astringent is not needed, but rather one just strong enough to be absorbed without corrugating or condensing the mucous membrane of the stomach; for in looseness of the bowels it is not the local action on the stomach, but the remote action on the bowels which is expected from an astringent.

It is stated in the U. S. Dispensatory (p. 958 and 978) that sometimes when an aqueous solution of tannic acid is exposed to the atmosphere that a change takes place with the partial conversion of tannic into gallic acid, and, according to the opinion of M. Edmond Robiquet, it is due to the presence of pectase in the tannin, which, with a proper temperature and in the presence of water, acts as a ferment. To obviate the change in this preparation, the tannic acid solution is directed to be boiled as recommended by the above named chemist, who asserts that if a tannic acid solution be boiled for some time, that the pectase loses its properties of acting as a ferment, and the solution may be kept indefinitely without change. According to Prof. Procter (Am. Jour. of Pharm., Jan., 1865, p. 53 and 54), the odor of commercial tannic acid is chiefly due to the odorous principle of nut-galls, and this is dissipated in a great measure in this preparation by the boiling, no odor being perceptible save that of the aromatics.

*Syrupus Gallæ Aromaticus.*

℞.

| | |
|---|---|
| Gallæ optimæ, in fine powder, | ℥ss. |
| Cinnamomi, in fine powder, | |
| Myristicæ, in mod. fine powder, | *aa* ʒii. |
| Glycerinæ, | ʒvi. |
| Syrupi, | ℥vi. |
| Spiritus Vini Gallici, | q. s. |

Mix the powders, and, having moistened the mixture with a sufficient quantity of brandy, pack it firmly in a small conical glass percolator, and gradually pour brandy upon it until it commences to drop; then insert a cork tightly in the lower orifice of the percolator and let it stand twenty-four hours. Then withdraw the cork and continue the percolation with brandy until six fluid-ounces of tincture are obtained Mix this with the glycerin and evaporate by a water-bath, at a temperature not exceeding 125° F., to three fluid-ounces, filter, and thoroughly mix the syrup.

The formula given for preparing this syrup in Parrish's Pharmacy is, in my opinion, unsatisfactory, and the above might be substituted for it, being of equal strength and more pharmaceutical in appearance and manipulation. After preparing this syrup by several different methods, I find that prepared according to the above formula is the most satisfactory in appearance, palatableness and qualities of keeping; it corresponds in strength to the one heretofore in use, differing from it in its mode of preparation, containing glycerin, also more sugar, and having none of it caramelized, the advantage of which is doubtful. The quantity of aromatics used in this formula seem to produce so much oily matter as to render the syrup slightly opaque, and would be improved in appearance by using less aromatics, but wishing to keep the proportions of the original formula is the reason I did not use less in preparing this syrup, although I think that if its preparation be carefully managed, particularly in adding the glycerin before evaporating, and not employing too high a temperature in evaporating, it will always result in a satisfactory preparation. The advantage that is gained in adding glycerin before evaporating, is that it holds more of the soluble matter in solution, which separates on evaporating the alcoholic liquid; the glycerin also improves the palatableness of the syrup considerably.

*Syrupus Kino Aromaticus.*

℞.

| | |
|---|---|
| Kino, in fine powder, | ʒvi. |
| Cinnamomi, in fine powder, | |
| Caryophylli, in fine powder, | |
| Myristicæ, in mod. fine powder, | *aa* ʒi. |
| Sacchari, | ℥vii. |
| Glycerinæ, | fʒvi. |
| Aquæ, | fʒxxvi. |
| Alcoholis Diluti, | q. s. |

Mix the aromatic powders, and, having moistened the mixture with a sufficient quantity of diluted alcohol, pack it firmly in a small glass funnel arranged for percolation, and gradually pour diluted alcohol upon it until one fluid-ounce of tincture is obtained. Triturate the kino first with the glycerin, and then with the water gradually added, and filter. To the filtered solution add the sugar, and having dissolved it by a gentle heat, strain while hot. Lastly, add the reserved aromatic tincture to the solution when it is cold, and mix them thoroughly.

The value of kino as a reliable astringent has been long and well known; it is frequently prescribed during the summer months, when astringents are most in demand, and to supply this demand the above syrup forms an aromatic preparation of it, representing about five grains of kino to each fluid-drachm. The alcoholic tincture is uncertain in its stability, unless sugar be added at the time of preparation. The syrup, however, is almost of equal strength, is stable, palatable and convenient, especially when a preparation free from alcohol is desired.

*Syrupus Catechu.*

℞.

| | |
|---|---|
| Catechu (select), in fine powder, | ʒvi. |
| Sacchari, | ℥vii. |
| Glycerinæ, | fʒvi. |
| Aquæ Cinnamomi, | f℥iv. |

Triturate the catechu, first with the glycerin and then with the water gradually added, and filter. To the filtered solution add the sugar, and having dissolved it by a gentle heat, strain while hot.

This syrup is of the same strength as the alcoholic tincture of catechu, U. S. Pharmacopœia, but differs from it in containing no alcohol or peculiar extractive, which latter is the cause of the mawkish taste in the tincture.

*Syrupus Geranii Maculati Aromaticus.*

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| | |
|---|---|
| Geranii maculati, in fine powder, | ℥iii. |
| Cinnamomi, in fine powder, | ʒi. |
| Caryophylli, in fine powder, | |
| Myristicæ, in mod. fine powder, | *aa* ʒss. |
| Sacchari, | ℥viii. |
| Alcoholis Diluti, | q. s. |

Mix the aromatic powders, and having moistened the mixture with a sufficient quantity of diluted alcohol, pack it firmly in a small glass funnel arranged for percolation, and gradually pour diluted alcohol upon it until half of a fluid-ounce of tincture is obtained. Moisten the geranium with a sufficient quantity of diluted alcohol, pack it firmly in a conical glass percolator, and gradually pour diluted alcohol upon it, until one pint of tincture has passed. Transfer the liquid to a porcelain vessel, boil for a few minutes, evaporate by a water bath to four fluid-ounces, and filter. To the filtered liquid add the

sugar, and having dissolved it by a gentle heat, strain while hot. Lastly, add the reserved aromatic tincture to the solution when it is cold, and mix them thoroughly.

This is an agreeable and efficient astringent, and is spoken highly of by the late Dr. Eberle in his work on the practice of medicine. A fluid-drachm represents twenty grains of the powdered drug; this would seem to be a large dose, and no doubt would be, if tannin were the only active principle, but Geranium maculatum is peculiar in its composition, containing both tannic and gallic acids, and therefore acts both as a local and remote astringent.

*Syrupus Staticis Aromaticus.*

R.

| | |
|---|---|
| Staticis, in fine powder, | ℥iii. |
| Cinnamomi, in fine powder, | ʒi. |
| Caryophylli, in fine powder, | |
| Myristicæ, in mod. fine powder, | *aa* ʒss. |
| Sacchari, | ℥viii. |
| Alcoholis Diluti, | q. s. |

The details of the process are identical with those for the preceding syrup of geranium.

The syrup prepared according to the above formula furnishes a preparation of statice that is powerfully astringent, with a saline taste, which latter is due to the presence of various salts, which betray its habitat. Notwithstanding the taste it is eligible in appearance, keeps perfectly well, and is convenient for preparing gargles and mouths-washes, for which this drug is chiefly used.

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## COURT PLASTER.

By Arthur S. French.

From an Inaugural Essay.

The author gives the following practical details for making court plaster, handsomely-made specimens of which accompany his essay.

The difficulty seems to be in most cases that of cracking and breaking, which fault can be remedied by the addition of glycerin. The following I will offer with a view of producing a superior quality of court plaster, and to prevent the breaking.

| | |
|---|---|
| Russia Isinglass, | ℥j. |
| Water, | Oj. |
| Alcohol, | fl℥j. |
| Glycerin, | fl℥ss. |

Soak the isinglass in the water for one day, then dissolve it by the aid of a gentle heat, after which strain it and add the alcohol and glycerin. The mixture being now ready for use, is spread on a fine quality of silk stretched on a frame, each successive coat being allowed to dry before applying the next. Heat should not be used in drying the plaster, as it is apt to drive the glycerin out, and leave the plaster streaked.

By another formula, court plaster is made in the following manner.

| | |
|---|---|
| Russia Isinglass, | ℥iss. |
| Resin, | ʒxiv. |
| Alcohol, | |
| Water, | aa q. s. |
| Glycerin, | ʒss. |

Beat the resin in a mortar until perfectly powdered, then dissolve it in alcohol q. s., and mix with the isinglass solution; strain and add the glycerin.

Court plaster made in this way is very adhesive but not as handsome as when made by the previous formula.

In another formula, gelatin is used instead of isinglass, and makes a very handsome plaster.

| | |
|---|---|
| Gelatin, | ℥iss. |
| Water, | Oj. |
| Glycerin, | flʒj. |

Soak the gelatin in the water for one day, then dissolve it by the aid of a gentle heat, and after it is dissolved add the glycerin.

This mixture, if spread on coarse and heavy silk, makes a white and opaque plaster; while, if spread on thin and finer silk, the plaster will be nearly transparent and of a yellowish tint.

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## ON THE TRAINING OF APPRENTICES.

By Geo. Ude.

The proper plan of educating young men in the profession of pharmacy is a question which is frequently discussed at the present time, and I think it very proper that this should be thoroughly done.

The late Professor Parrish has written a very able answer to a query about the preliminary educational requirements of apprentices who wish to enter stores of pharmacy. It may be readily seen from this essay that he has been attached devotedly to our profession, and that the system of teaching in schools might be improved considerably.

I should advocate the teaching of the Latin language in our high schools, as it would not only be beneficial for youths entering our profession, but for all, in any kind of business, as Latin phrases are frequently used even in our daily papers. As to the plan of teaching apprentices, there is a very large space left vacant for improvement.

Having at this very time a new apprentice, and considering the question now pending, I would here briefly state my plan, and if any of the profession sees room for improvement, it will be for the benefit of the profession at large to publish it.

I have, so far, instructed two. When the youth enters his apprenticeship, I hand him a list of the names of all the drugs and preparations in the shop, written on cap paper in the Latin, English and German languages, and let him commence with the names of those in materia medica, not in rotation of the Pharmacopœia, but in rotation of drawers and bottles as they are on the shelves. For instance, thus:

| | | |
|---|---|---|
| Cetraria, | Iceland Moss, | Islaendisches Moss. |
| Cera alba, | White Wax, | Weisses Wachs. |
| Cera flava, &c., | Yellow Wax, &c. | Gelbes Wachs, &c. |

This plan may appear one-sided to some, but it is just this in which I have had occasion to see how little the labor of Wood and Bache is appreciated when they give us not only the English names besides the Latin, but also the German, French, and in many instances those of different other languages. Considering that there are quite a number of Germans in this city (St. Louis, Mo.), I let my apprentices study the three above mentioned. I have been on visits to some of my friends, also apothecaries, and was informed that some German party would come in and ask for Flaxsaamen Thee, and such like articles, and, not knowing what the party meant, the sale had been lost.

Certainly it is a little trouble to write say 600 or 700 names in three languages, but the reward will be ample. Five or six sheets of foolscap paper and a couple of days' leisure hours will do it.

I let the apprentice learn during the leisure hours in the day-time, and hear his lesson, say, for instance, 100 names, in the evening; and when he is cleaning the shelves and bottles, Saturdays, I tell him to take a look at the ingredients, and thereby let his work, be it as it is, a dusty job, be an instruction to him.

After he has learned the names I let him peruse the U. S. Dispensatory, and a small treatise on chemistry, and another on botany.

These three, together with the work he has to perform, and with personal instruction, make him a good student for the College of Pharmacy and a reliable pharmacist thereafter.

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## IMPROVED FORMULA FOR CAMPHOR WATER.

By Wm. B. Addington, Norfolk, Va.

| | | |
|---|---|---|
| ℞. | Camphoræ, . . . . . | ʒiv, |
| | Magnes. Carb., . . . . . | ʒii, |
| | Aquæ Destillat., . . . . . | Oiv, |
| | Alcohol., . . . . . | q. s. |

Take just enough alcohol to dissolve the camphor and bring it to a liquid state; while liquid add the magnesia and triturate (during this time the alcohol will evaporate). Then mix the water, as usual, and filter. By making a perfect solution of the camphor, the particles are thoroughly divided, whereas by the U. S. P. process only enough alcohol is added to break up the adhesion of its particles and reduce it to powder, and all must have noticed the numerous small grains of camphor left on the filter by the present process. Camphor water is made by the process I suggest in one-half the time; magnesia is saved by it, and all the camphor directed is taken up in the solution. By the present process it is not. There is no deposit formed on the bottom or sides of the jar by standing. I have tried this formula for the last eight months, and am vey much pleased with it.

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## ON THE MEDICINAL USE OF GREEN SOAP.

By the Editor.

A short time ago, a correspondent asked us for a formula for Tinctura Saponis viridis composita, which he informed us was used in the eastern cities. At first we were unsuccessful in our endeavors to comply with the wish of our correspondent, until Messrs. Wm. McIntyre and Gustavus Krause furnished us with the following formulas, which we publish below for the benefit of our readers.

Commercial soft or green soap is usually made now, wholly or in part, from common whale and other fish oil. Hemp-seed oil, or rather a mixture of it with various other liquid fats, has formerly been used, but long since substituted by almost any refuse oil which, on account of smell, rancidity or color, is unfit for other uses. These oils are saponi-

fied with caustic potash, and the desired green color is imparted to it by blue, green or yellow pigments, as may be required. Frequently, however, soft soap is met with of a blackish, or rather such a dirty color that it is difficult to distinguish a particular tint. The soft soap of the London Pharmacopœia of 1851, and of the Edinburg Pharmacopæia of 1841, was directed to be made from olive oil and potash.

Green soap is mainly used in medicine for the cure of itch, and in various other skin diseases; but, on account of its caustic nature, is not often applied.

The following formulas* have been furnished to us:

*Lotio Saponis viridis* (*Prof. Hebra*). Green soap ℥i, boiling water Oj, oil of lavender ʒss. Mix.

*Spiritus saponatus kalinus* (*Prof. Hebra*). Green soap 2 parts, 95 per cent. alcohol, 1 part. Scent ad libitum.

*Tinct. Saponis vir. cum pice* (*Prof. Hebra*). Green soap, tar, alcohol, equal weights of each.

*Tinct. Saponis vir. comp.* (*Tilbury Fox*). Green soap, oil of cade,† alcohol, aa ℥i, oil of lavender fʒiss. Mix.

Some older preparations of green soap we find quoted in Redwood's Supplement to the Pharmacopœia, London, 1857:

*Freeman's Bathing Spirits.* Soft soap 6 lbs., camphor 8 oz., alcohol and water of each 3 galls. The solution to be colored with 4 oz. Daffy's Elixir (Tinct. Sennæ et Jalapæ).

*Jackson's Bathing Spirits.* Soft soap 2 lbs., camphor 12 oz., oils of rosemary and thyme of each 1½ oz., alcohol 2 galls.

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## EXTRACTUM IPECACUANHÆ FLUIDUM.‡

By B. F. McIntyre.

The Pharmacopœia of 1860 and the revision recently published give formulas for the preparation of Fluid Extract of Ipecac. The alteration of the old formula given in the new edition, suggested the following experiments to determine whether the change is an improvement.

* Several of these formulas may be found in Napheys' Modern Therapeutics.

† The empyreumatic oil obtained from the wood of *Juniperus oxycedrus*.

‡ Read at the second annual meeting and published in the Annual Report of the Alumni Association of the College of Pharmacy of the City of New York.

The results obtained seemed of sufficient importance to bring before the annual meeting of the Alumni.

The Pharmacopœia of 1860 directs that powdered ipecac be exhausted with stronger alcohol, the alcohol partially recovered by distillation, the concentrated extract mixed with water and acetic acid, the filtrate evaporated to a definite measure, a portion of alcohol added to preserve the preparation, the finished fluid extract measuring 16 f. oz. for every 16 Troy oz. powder manipulated.

The details of this process will be considered further on.

The Pharmacopœia of 1870 directs that two menstrua be used to exhaust the powder, the first a mixture, (24 f. oz. stronger alcohol, 12 f. oz. water), followed with diluted alcohol until the resultant percolate measures 32 f. oz.; one-half pint glycerin is added to this 32 f. oz. of percolate, and the whole evaporated at a temperature not exceeding 140° F.

The first menstruum given in the formula was used to exhaust the ipecac. Each successive pint of percolate from the drug was accurately weighed at 62° F., the several differences found, and the proportional distribution of extract through the percolate, calculated in the manner indicated by Dr. Squibb before the American Pharmaceutical Association in 1870.

One pint of the menstruum weighed 6,590 grs., the powder required 10 f. oz. to moisten it thoroughly, and after four days maceration, 26 f. oz., before the percolation commenced.

A tabular statement of the rate of exhaustion is given:

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Pint | weighed | 7,108 | grains. | Difference, | 518 | grains. | Extract, | 1,299 | grains. |
| 2 | " | " | 6,805 | " | " | 215 | " | " | 560 | " |
| 3 | " | " | 6,670 | " | " | 80 | " | " | 200 | " |
| 4 | " | " | 6,635 | " | " | 45 | " | " | 112 | " |
| 5 | " | " | 6,630 | " | " | 40 | " | " | 100 | " |
| 6 | " | " | 6,622 | " | " | 32 | " | " | 69 | " |
| | | | | | | 930 | grains. | | 2,340 | grains. |
| Quantity powder percolated | | | | | | | | | 7,680 | grains. |
| Dried residue, after exhaustion | | | | | | | | | 5,327 | " |
| Loss by percolation, solid extract | | | | | | | | | 2,353 | grains. |

The Pharmacopœia percolates 2 pints. Percentage of total extract, 80 per cent. Extract in pint when of 80 per cent., 1,859 grains.

The weight of 8 f. oz. glycerin, specific gravity 1.25, was found

to be 4,574 grains; this, mixed with the first 32 f. oz. percolate, and evaporated to 16 f. oz., weighed 8,310 grains finished fluid extract.

A practical difficulty presents itself in the manufacture of this preparation. Economy of alcohol in the manipulation of fluid extracts is an important consideration, and this is paramount whenever it can be practiced without injury to the preparation.

The Pharmacopœia directs that the first 32 f. oz. percolate be evaporated at a temperature not exceeding 140° F., therefore the recovery of alcohol from the tincture is impossible, the temperature given is too low for distillation; if it is heated to the boiling point, the finished preparation will be gelatinized and unsatisfactory.

If the evaporation is conducted at 140° after filtering, the finished fluid extract has a syrupy consistence, dark rich color, odor strong and characteristic of the drug.

The new formula provides no method for the separation of the inert resin, which is the troublesome object that required attention. The writer made several experiments, varying the process, but adhering to the glycerin and low temperature, and found in every instance that a syrup made from the fluid extract precipitated the resin, giving the syrup a dirty appearance, which is a cause for complaint.

The loss of alcohol is great, first in the residue or exhausted powder, then from the tincture, finally glycerin is added, and the preparation has gained nothing but density and color. Emetia, the active principle in ipecac, is perfectly soluble in alcohol and sparingly soluble in water, U. S. Disp.—page 495.

This fact suggests stronger alcohol as the proper menstruum, the rate of exhaustion is given below, 16 f. oz. stronger alcohol weighing about 5,907 grains.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 Pint | weighed | 6,333 | grains. | Difference, | 426 | grains. |
| 2 " | " | 6,110 | " | " | 203 | " |
| 3 " | " | 6,065 | " | " | 158 | " |
| 4 " | " | 6,055 | " | " | 148 | " |
| 5 " | " | 6,055 | " | " | 148 | " |
| 6 " | " | 6,060 | " | " | 153 | " |
| 7 " | " | 6,038 | " | " | 131 | " |
| | | | | | 1,367 | grains. |
| Quantity powder percolated . . | | | | | 7,680 | grains. |
| Dried residue, after exhaustion . | | | | | 6,320 | " |
| Loss by percolation, solid extract | | | | | 1,360 | grains. |

The dried residue, after powdering, was wet up with water (weight of 16 f. oz. water about 7,300 grains) and exhausted.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 Pint weighed | | 7,630 | grains. | Difference, | 330 | grains. | Extract, | 734 | grains. |
| 2 " | " | 7,415 | " | " | 115 | " | " | 255 | " |
| 3 " | " | 7,335 | " | " | 35 | " | " | 77 | " |
| | | | | | 480 | grains. | | 1,066 | grains. |
| Quantity residue percolated . . . | | | | | | | | 6,320 | grains. |
| Dried residue, after exhaustion . . . . | | | | | | | | 5,252 | " |
| Loss by percolation, solid extract . . . | | | | | | | | 1,068 | grains. |

The three pints aqueous percolate when evaporated to dryness, gave of extract 1,150 grains. This extract has a perceptible odor, and in 10 grain doses produced nausea and slight emetic effect; its taste is peculiar and disagreeable. Ten grains of the extract would be equivalent to seventy grains of the powder, if the former had special medicinal value. The separation of resin from fluid ipecac is difficult; the Pharmacopœia process of 1860 will not effect its removal. The formula directs 10 f. oz. water with 1 f. oz. acetic acid to be mixed with the concentrated alcoholic extract—the writer has found it necessary to use from five to ten pints of water with 1 f. oz. acetic acid for every Pharmacopœia portion—frequently this dilution is repeated before the preparation is free from resin.

One pint of fluid ipecac, made by the old process, weighs about 7,980 grains at 65°F. Fluid extract of ipecac prepared by the process given in the 1860 Pharmacopœia, is rarely found free from resin; the following formula for syrup of ipecac has proved reliable, producing a clear elegant syrup:

| | |
|---|---|
| Fluid Ipecac | f. oz. j. |
| Water | f. oz. xvij. |
| Gran. Sugar, | Troy oz. xij. |

Dilute the fluid extract with 16 f. oz. water, set aside for 12 hours, filter, evaporate to 6 f. oz., filter, add through filter 1 f. oz. water, then dissolve sugar with gentle heat, the finished syrup to measure 16 f. oz.

The conclusion of these experiments indicate that the old formula is reliable and economical, though difficult in manipulation. The physician rarely has cause to criticise the effectiveness of fluid ipecac when prepared from good root, and by the old process.

The Pharmacist wants a fluid extract of ipecac that will not precipitate when in the form of the officinal syrup.

The formula in the Pharmacopœia of 1870 does not supply this want.

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## ON THE COMPARATIVE THERAPEUTICAL VALUE OF SALTS OF PROTOXIDE AND SESQUIOXIDE OF IRON, AND ON A NEW SERIES OF TASTELESS IRON COMBINATIONS.*

By J. L. A. Creuse, of Brooklyn, N. Y.

It is not my intention here to treat on the medical properties and uses of ferruginous compounds as a class; this has been done before me by more competent persons. My purpose is only to discuss the relative physiological and chemical properties of the various iron combinations and describe a new series of tasteless ferruginous compounds.

Iron has been used in medicine, it may be said, from time immemorial. Metallic iron, green copperas, iron rust, carbonate of iron, bole armenia, etc., are mentioned in the oldest authors on medicine and pharmacy. It seems also that in former times little importance was attached to the peculiar form in which iron was administered. Some fifty or sixty years ago, however, a decided preference began to be shown for metallic iron, finely comminuted, and for the proto-salts of iron. It was thought, then, that the easy solubility of those preparations in the stomach was a great advantage, and that theory gave rise to a number of officinal remedies like iron by hydrogen, Vallet's mass, proto-iodide of iron, etc., etc., well known to all Pharmacists.

But of late years, especially since the discovery of the citro-ammonical pyrophosphate of iron, by Robiquet, my old master, salts of sesquioxide of iron have been steadily growing into favor. It has been argued, with reason, that, since iron in human economy is invariably found in the shape of sesqui-salts, such compounds should be preferred to all others whenever iron is indicated. I may add, also, that it is always in the form of sesqui-salts that iron exists in all vegetable and animal substances which compose human food, and that metallic iron or its proto-salts cannot be mixed with the simplest aliments without completely decomposing them. Protoxide of iron

* Read at the second annual meeting and published in the annual report of the Alumni Association of the Colllege of Pharmacy of the city of New York.

is as unyielding as it is unstable: when you have combined it with strong acids you can go no further with its salts: you can do nothing with them, not even an alum. Sesquioxide of iron, on the contrary, is a perfect Proteus; sometimes a base, sometimes an acid, it is always ready to enter into some combination or other on the slightest provocation.

In a paper published some time ago I demonstrated that nearly all the insoluble sesqui-salts of iron could be combined with the alkaline citrates, forming soluble and tasteless compounds, to which I gave the name of quadruple citrates.

Since then, further experiments have shown me that other vegetable salts, besides the citrates, possessed also the same property, and that not only the insoluble but also the soluble sesqui-salts of iron could form similar combinations.

In other words, I may lay down this rule: *All the salts of sesquioxide of iron, without exception, soluble or insoluble, form combinations with all the alkaline citrates, tartrates and oxalates.* Such combinations are invariably green, whatever may be the color of the iron salt; they are all soluble in water, nearly insoluble in alcohol; they are all free from ferruginous taste, all perfectly stable, and miscible with preparations of Peruvian bark without decomposition. In all of them the presence of iron is so disguised as not to be detected by chemical reagents, unless after the addition of strong acids or sulphuretted hydrogen, both of which destroy the combination.

In other papers I have described the soluble compounds obtained in combining the phosphate, hypophosphate, valerianate and arseniate of iron with the alkaline citrates. In this I will merely describe the tasteless combinations of the alkaline citrates with iodide, chloride, sulphate and nitrate of iron.

### Tasteless Iodide of Iron.

This is, no doubt, the most important of the whole series, both therapeutically and chemically; therapeutically, because iodide of iron is admitted to be the best of all iron combinations; chemically, because all the reactions happening during its preparation are so remarkable and so easy to follow with accuracy as to be likely to give a key to the real composition of the rest of the series—a result which can hardly be obtained with any of the other similar combinations.

The salt is obtained in the following manner: 126,3 grs. (1 eq.) of

iodine are first combined with metallic iron, in the usual way to obtain the proto-iodide of iron; this is filtered, and 63 grs. ($\frac{1}{2}$ eq.) of iodine are dissolved into it. Then, a solution of 201 grs. (1 eq.) of citric acid saturated with a fixed alkali, such as potassa, for instance, is added by small portions to the sesqui-iodide of iron. The ferruginous solution which is at first of a ruby red color and has a strong smell of iodine, becomes lighter by degrees, till as the last drop of citrate is added, it takes a bright apple green color; at the same time, all smell of iodine, all taste of iron have disappeared; the solution strikes no color on starch paper, and gives no precipitate with either tannin or ferrocyanide of potassium. It may be then evaporated at a low heat, with gentle stirring to dryness, when it gives a green mass formed of very small acicular crystals, looking somewhat like cauliflowers. It is tasteless, perfectly stable, unless exposed to direct sunlight, and may be exhibited, in the shape of syrup, elixir, solution, tincture, pills, etc. The dose of it need not be more than one-half of that of the proto-iodide of iron, as it is absorbed much more readily.

Chemically, this iodide of iron seems to be a combination in which sesqui-iodide of iron plays the part of an acid and the alkaline citrate that of a base; but the subject requires further investigations before it can be decided with complete certitude.

The other alkaline citrates may be used instead of citrate of potassa; similar combinations may also be obtained with the alkaline tartrates, oxalates, and malates, but none are so tasteless, and especially none so *stable* as the one just mentioned.

I must add a few words on this subject which is a most important one, for the same remarks may be applied to all the other analogous iron combinations, pyrophosphate included. On reading the above process, some may think that, after all, the product is only a mixture of citrate of iron, iodide and iodate of potassium. But, aside of the fact that the different ingredients are not in proportion to form such combinations, chemical tests show that such is not the case. Citrate of iron, for instance, is of a ruby red color and turns immediately ink black on the addition of tannin, while tasteless iodide of iron is bright green and is not colored black by tannin, but only turned to a light purple hue, after some time. Iodide of potassium dissolves iodine freely: the new salt dissolves it but sparingly, unless when in a concentrated solution. Iodate of potassium is colored red by solutions of morphia: no coloration is produced by them in solutions of the new

salt. This last reaction is important, as iodate of potassium is deemed poisonous by some physicians.

### Tasteless Chloride of Iron.

Sesqui-chloride of iron, the salt which enters in the preparation generally known as tincture of muriate of iron, has the property of forming combinations precisely similar to those of the sesqui-iodide. If an alkaline citrate be added to a solution of sesqui-chloride of iron, in the proportion of two equivalents of the former to each three equivalents of chlorine, a new salt will be obtained of a green color, quite tasteless, and miscible with vegetable preparations such as infusions of bark, quassia, etc., without change or discoloration.

This tasteless muriate of iron may be dissolved in diluted alcohol in the proportion required by the Pharmacopœia of the United States; it forms, then, a tincture of muriate of iron, which is as superior to the old one as a civilized man is above a barbarian. Its effects, I know, from experience, are fully equal to those of the officinal tincture.

I cannot give the exact weight of citric acid required for a given quantity of the officinal tincture of muriate of iron, on account of the great variation in the strength and acidity of that preparation, but, on an average, 120 to 140 grains of citric acid saturated with either soda or ammonia will answer for one fluid-ounce of the tincture. This is to be added to the iron solution before the alcohol, and the alcoholic strength of the tincture, when finished, must not be more than 30 or 40 p. c. instead of 70 p. c., as usual.

The sesqui-sulphate and the sesqui-nitrate of iron form also combinations precisely alike to those described above, but present no special interest to be entitled to more than a simple mention.

All these combinations, however, lack the property of coagulating the blood, and for that reason cannot be used as styptics in cases of hemorrhagia, etc. The old officinal preparations will have to be retained for external use, the only thing they are fit for in a civilized community.

Note.—The tasteless Iodide of Iron has been patented, but with no intention of interfering with any Druggist who wishes to make it himself for his own dispensing.

## ON THE PREPARATION OF PURE PROTIODIDE OF MERCURY.*

By Jules Lefort.

Protiodide of mercury as at present prepared, is often a mixture of protiodide and metallic mercury with more or less of biniodide, and though it is not difficult to remove the last named compound, the contaminating metal cannot be separated. To prepare the protiodide by double decomposition, it was necessary to find a mercurous salt, neutral in its reaction and readily soluble in water. The author has found these conditions in the hitherto unknown double salt of pyrophosphate of sodium and mercurous acetate, which must be placed in the same category with the double pyrophosphates investigated by Persoz† and Pahl‡.

The new double salt crystallizes in handsome needles, which alter on prolonged contact with the air, but dissolve readily in water without decomposition. The solution yields with potassium iodide a greenish yellow precipitate of mercurous iodide, having exactly the composition HgI; in the reaction, the pyrophosphate of sodium plays no other part except that of a solvent for the mercurous acetate.

To prepare the double salt 60 grams of pure crystallized pyrophosphate of sodium are dissolved, with the aid of heat, in 300 grams of distilled water; when cool, 30 grams of mercurous acetate are added to the solution, and the mixture stirred from time to time. If the pyrophosphate is chemically pure, the mercurous salt will completely dissolve without the least decomposition. Usually, however, a partial decomposition has occurred during the conversion of the ordinary phosphate into the pyrophosphate of sodium by the prolonged heat, and a small quantity of the mercurous acetate is then decomposed into mercuric salt and metallic mercury, which, however, has no other effect upon the mercurous iodide except to somewhat lessen the yield.

To the filtered solution an equal volume of distilled water is added, and afterwards in small quantities with continued agitation, a solution of 30 grams iodide of potassium in one litre of distilled water. The precipitate is at first brownish green, afterwards green, resembling the green oxide of chromium; but after settling, it has a greenish yellow color, so that the salt is probably polychromatic.

* Abstract of a paper read before the Pharmaceutical Society of Paris, and published in the Journal de Pharmacie et de Chimie, 1873, April, p. 267—270.

† Journal de Pharmacie et de Chimie, 3 ser. xii, p. 218.

‡ Bulletin de la Société Chimique, xix, 1873, p. 115.

Neither iodine or mercury is set free during any stage of the precipitation, as in the case of mercurous nitrate and iodide of potassium. If the solution of pyrophosphate of sodium and mercurous acetate contains some mercuric acetate, a pale red coloration of the liquid will be produced towards the close of the reaction by the separation of biniodide of mercury, which is easily removed by a slight excess of potassium iodide, the dilute solution of this salt not decomposing the protiodide of mercury while it readily dissolves the biniodide. It is well not to omit the precaution of testing the precipitate for this contamination, by washing a portion with hot alcohol. The precipitate is washed with cold water by decantation, collected upon a filter and dried at a moderate temperature, protected from the light.

It is true that this process is more costly than those described in standard works, but the quality of the product is such that these objections amount to nothing.

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## SELECTED FORMULAS FROM PHARMACOPŒA GERMANICA.

By the Editor.

(Continued from page 163 of last number.)

*Mixtura gummosa.* Finely powdered gum arabic and sugar, each 15 p.; distilled water 170 parts.

*Mixtura oleoso-balsamica, s. Balsamum vitæ Hoffmanni.* 3 parts of balsam of Peru, 1 part of each of the volatile oils of lavender, cloves, Chinese cinnamon, thyme, lemon, mace and orange-flowers, 240 parts of 90 per cent. alcohol.

*Mixtura sulfurica acida, s. Elixir acidum Halleri.* Add gradually sulphuric acid, 1 part, to 90 per cent. alcohol, 3 parts.

*Mixtura (Aqua) vulneraria acida s. Thedenii.* Vinegar, 6 p.; 68 per cent. alcohol, 3 p.; dilute sulphuric acid (sp. gr. 1·113—1·117), 1 p.; purified honey, 2 parts. Mix and filter.

*Mucilago Cydoniæ.* Quince seed, 1 p.; rose water, 50 p. Macerate for half an hour, with frequent agitation, and strain.

*Mucilago (Decoctum) Salep.* Put 1 part of powdered salep into a flask containing 10 parts of cold water, and mix well by agitation; then add 90 parts of boiling water, and shake the mixture continuously until cool.

*Oxymel Colchici.* Mix vinegar of colchicum, 1 part, with clarified honey, 2 parts. Evaporate to 2 parts, and strain.

*Oxymel Scillæ* is prepared in the same manner from vinegar of squill.

*Oxymel simplex.* Acetic acid, No. 8, 1 p.; clarified honey, 40 p. Mix.

*Pasta gummosa s. Althææ* is the well-known so-called marsh-mallow paste, and

*Pasta Liquiritiæ s. Glycyrrhizæ* is sold here under the name of jujube paste.

*Pilulæ aloeticæ ferratæ s. Pil. Italicæ nigræ.* Equal parts of exsiccated sulphate of iron and powdered aloes are mixed, and with alcohol formed into pills, each weighing 10 centigrams.

*Pilulæ jalapæ.* Jalap soap, 3 p.; powdered jalap, 1 part. The pills to weigh 10 centigrams.

*Sapo jalapinus, Jalap soap,* is made by dissolving 4 parts each of resin of jalap and of medicated soap (made of olive oil and soda) in 8 parts of 68 per cent. alcohol, and evaporating to 9 parts.

*Pilulæ odontalgicæ, tooth-ache pills.* 5 grams each of powdered opium, belladonna root and pellitory, 7 grams yellow wax, 2 grams expressed oil of almond and 15 drops each of oil of cajeput and cloves, are mixed in a warm mortar until a pill mass is obtained, which is divided into pills, each weighing 5 centigrams.

*Plumbum tannicum pultiforme s. Cataplasma ad decubitum.* 8 p. of cut oak bark are boiled with sufficient water, for half an hour, to obtain a decoction weighing, after straining, 40 parts; this is mixed with 4 parts of solution of subacetate of lead, the precipitate collected upon a filter, and when weighing about twelve parts transferred into a suitable vessel and mixed with one part 90 per cent. alcohol.

*Potio Riveri,* an effervescing neutral mixture, prepared of 4 parts citric acid, 190 p. distilled water, and 9 p. pure carbonate of sodium.

*Pulvis aërophorus.* Bicarbonate of sodium, 10 p.; tartaric acid, 9 parts; sugar, 19 parts. The articles are separately reduced to a very fine powder, thoroughly dried, and then mixed.

*Pulvis aërophorus Anglicus* = Soda powders.

*Pulvis aërophorus laxans* = Seidlitz powders.

*Pulvis arsenicalis Cosmi.* Cinnabar, 120 parts; animal charcoal, 8 p.; dragon's blood, 12 p.; arsenious acid 40 parts. Mix thoroughly to a fine powder.

*Pulvis gummosus.* Powdered gum arabic, 3 parts; liquorice root, 2 p.; sugar, 1 part. Mix.

*Pulvis ad Limonadam s. P. refrigerans Ph. Bad.* Powdered sugar, 120 grams; citric acid, 10 grams; oil of lemon, 1 drop. Mix.

*Pulvis Magnesiæ cum Rheo, s. P. infantum s. antacidus.* Carbonate of magnesium, 60 p.; fennel oil sugar, 40 p.;* rhubarb, 15 parts. Mix thoroughly.

*Pulvis temperans s. refrigerans Ph. Germ.* Nitrate of potassium, 1 p.; cream of tartar, 3 p.; sugar, 6 parts. Mix.

(To be continued.)

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## GLEANINGS FROM THE EUROPEAN JOURNALS.

By the Editor.

*Carbazotate (Picrate) of Ammonium* is again recommended in intermittent fevers by Dr. Dujardin-Beaumetz, who from his observations arrives at the following conclusions:

1. Carbazotate of ammonium is very efficacious in intermittent fevers.

2. The disease may be suppressed by the use of from 2 to 4 centigrams ($\frac{1}{3}$ to $\frac{7}{11}$ grains) of carbazotate in 24 hours.

3. In such a dose the medicine produces no ill effects, and appears even to be better borne than sulphate of quinia.

4. The preparation of carbazotate of ammonium is not connected with any danger.†

5. The physiological action of carbazotate of ammonium is very analogous to that of sulphate of quinia.

6. It deserves to be generally used, and appears to replace quinia in a great number of cases.—*Répertoire de Pharm.*, 1873, 12.

*Syrup of lacto-phosphate of calcium* is prepared by Ch. Ménière by dissolving 1 gram white lactate of sodium and 4 grams soluble acid phosphate of calcium in a small quantity of water, and adding the solution to 395 grams of simple syrup. The preparation is flavored with some essence of lemon.—*Ibid.*, 37.

*The oil sugars, elæosacchara, contain 1 drop of volatile oil to 2 grams of powdered sugar.

† The potassium and many other salts of picric acid are very explosive; the ammonium salt, when rapidly heated, burns without explosion.—Editor Amer. Journ. Pharmacy.

*Decomposition of Hydrate of Chloral.* Hydrate of chloral containing the elements for formic acid and chloroform ($C_4HCl_3O_2,H_2O_2=C_2HCl_3+C_2H_2O_4$) is split into these two bodies by the action of alkalies. H. Byasson has observed a similar decomposition under the combined influence of glycerin and heat. On heating a solution of 1 part of chloral hydrate in 5 parts of syrupy glycerin, a reaction commences at about 110° C. (230° F.), and continues regularly to about 230° C. (446° F.), when the glycerin is much colored and thick. The decomposition products have distilled over, and the liquid separates into two layers, the lower of which consists of chloroform, while the upper layer contains formic acid, hydrochloric acid, formiate of allyl and chloral hydrate dissolved in water. As a mean of three operations, 100 chloral hydrate yielded 31 chloroform. The other products are in small proportions and the result of secondary decomposition; hydrochloric acid results from the decomposition of some chloroform, and formiate of allyl from the decomposition of glycerin under the combined action of heat and nascent formic acid. To obtain the results as described, it is important that the glycerin should be syrupy; if water had been previously added, the greater part of the chloral will distil over undecomposed.—*Journ. de Pharm. et de Chim.*, 1873, *April*, 288—290.

*Composition of some Nostrums.* "Apotheker Zeitung," 1873, No. 9, gives the following composition of two American patent medicines, copied from "Industrie-Blätter":

Five-minute fragrant Pain-curer of the so-called New York Medical University: Ether 6 grams, glycerin 21, table-salt 3·4 and water 170 grams.

Dr. Pierce's favorite prescription for the cure of those chronic weaknesses and complaints peculiar to females: From savin 10, agaric 5, cinnamon 5, pale cinchona 10 grams, a decoction of 220 grams is obtained, to which are added 10 gm. gum arabic, 5 gm. sugar, 2 gm. tincture of digitalis, 2 gm. tincture of opium, and 8 drops oil of star anise dissolved in 45 grams of alcohol.

*Pure Gallotannic Acid.* Julius Lœwe has endeavored, by a series of elaborate experiments, to determine the composition of pure gallotannic acid and its relation to gallic acid. Commercial tannin was purified, 1, by dialyzing its alcoholic solution through a porous clay

vessel, evaporating the dialyzed portion and taking up by ether; 2, by drying it for several months over sulphuric acid, taking up with anhydrous ether, agitating the solution with water and evaporating the lower stratum; 3, by dissolving it in a mixture of equal volumes of water and saturated table-salt solution, saturating the liquid with pure table-salt, treating the precipitate in the same manner, then dissolving it in dilute solution of table-salt, and extracting the pure tannin by acetic ether.

The resulting dense white or yellowish powder, which had been dried at 120° C. (248° F.), yielded, by ultimate analysis, results which closely agreed with the composition of gallic acid ($C_{28}H_{12}O_{20}$), minus 20. Gallotannic acid may, however, be converted into gallic acid in an atmosphere entirely devoid of oxygen; the latter cannot, therefore, be a product of oxidation of the former. On exposing pure tannin for several hours in an air-bath to a temperature of 140—145° C. (284—293° F.), a loss in weight, due to expelled water, was observed, and the residue agreed better with the formula given by Mulder, $C_{28}H_{10}O_{18}$. This appears to be the correct empirical formula; the tannin, however, even when dried at 120° C., persistently retains a little water.

That tannin is not merely the anhydride of gallic acid, but that on conversion into the latter the grouping of the elements must be changed, is proven by the action of concentrated sulphuric acid upon the two compounds at the temperature of the water-bath. Gallic acid yields under these conditions rufigallic acid, while gallotannic acid gives, under the evolution of much sulphurous acid, a brown amorphous product which is not related to rufigallic acid.

An aqueous solution of pure tannin is not affected by exposure to the light, if the atmosphere be excluded.—*Zeitschr. f. Anal. Chemie*, 1872, xi, 365—381.

*Estimation of Alcohol in Chloroform.* Dr. A. C. Oudemans, Jr., recommends to agitate in a flask 7 to 10 c.c. of the chloroform at a temperature of 17° C. (62·6° F.) with an excess of dry cinchonia. After an hour the liquid is filtered, the funnel being kept covered with glass, and 5 c.c. of the filtrate are evaporated in a tared capsule. From the weight of the dissolved cinchonia the alcohol may be estimated by the following table, in which the alcohol is given in per cent. by weight, and the solution (5 c.c.) measured at 17° C.:

| Chloroform containing | Leaves milligrams | Chloroform containing | Leaves milligrams |
|---|---|---|---|
| 0 per ct. alcohol | 21 | 5 per ct. alcohol | 226 |
| 1 " | 67 | 6 " | 260 |
| 2 " | 111 | 7 " | 290 |
| 3 " | 152 | 8 " | 318 |
| 4 " | 190 | 9 " | 343 |
| | | 10 " | 366 |

The following table shows the amount of cinchonia soluble in 100 parts of chloroform containing the percentage of alcohol stated:

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Containing | 0 | per ct. | alcohol, | 0·28 | cinch. | Containing | 5 | per ct. | alcohol, | 2·96 | cinch. |
| " | 1 | " | " | 0·90 | " | " | 6 | " | " | 3·39 | " |
| " | 2 | " | " | 1·46 | " | " | 7 | " | " | 3·79 | " |
| " | 3 | " | " | 1·99 | " | " | 8 | " | " | 4·15 | " |
| " | 4 | " | " | 2·49 | " | " | 9 | " | " | 4·48 | " |
| | | | | | | " | 10 | " | " | 4·76 | " |

The cinchonia is best prepared for the above purpose by precipitating with ammonia a solution of a pure cinchonia salt in weak alcohol; the alkaloid is then obtained in microscopic crystals, which are readily soluble.—*Ibid.*, 409, 410.

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## Minutes of the Philadelphia College of Pharmacy.

The annual meeting of the Philadelphia College of Pharmacy was held at the College building March 31st, 1873. 35 members present. Dillwyn Parrish, President, in the chair. In the absence of the Secretary, Charles Bullock, Joseph P. Remington read the minutes of the last meeting, which were adopted.

The minutes of the Board of Trustees were read by the Secretary of the Board, Wm. C. Bakes, and approved. The minutes inform that at the 52d annual Commencement of the College, held at the Academy of Music, on the 18th inst., the diploma of the College was conferred upon 94 graduates, the valedictory address being delivered by Prof. Robert Bridges.

Wm. C. Bakes, on behalf of the Committee on Honorary Membership, reported that acknowledgments of receipt of certificates had been received from several honorary and corresponding members.

The Committee on Sinking Fund reported a balance in favor of the College, deposited in the Western Saving Fund, of $2677 96.

After some discussion, the following resolution, presented by Robert Shoemaker, was adopted:

*Resolved*, That the Chairman of the Sinking Fund, and the Treasurer of the College, be directed to pay off scrip of the College to the amount of twenty-five hundred dollars.

The report of the Publication Committee was read by Professor Procter. It is as follows:

"The Publishing Committee respectfully report that the several branches under the supervision of the Committee have been successfully carried on, as will be seen by the annexed reports. The Editor in his report says: 'The Journal has been regularly issued during the past year. The arrangements with our foreign exchanges to send the Journals reciprocally by mail have been perfected with most, and the Journals have been duly received, no loss having accrued. This has enabled the editor to select the latest papers for publication.'

"The circulation of the Journal is continually on the increase, and the printing of a larger number than heretofore has become necessary.

"The Committee have printed nearly the whole of the *General Index* to the Journal, and hope before many weeks to be able to announce its completion. The excellence of this index becomes more apparent as it appears in print, and its usefulness to those who possess the Journal, or who may have access to it, will be very great, as it enables the reader who has any clue to his subject, or to the author's name to promptly find what he seeks. The editor, Mr. Hans M. Wilder, deserves great credit for his perseverance and accuracy in carrying on the work.

"The College is congratulated on the favorable condition of the finances of the Journal, as exhibited by the reports of the Treasurer and Business Editor.

Signed, William Procter, Jr., John M. Maisch, Charles Bullock, James T. Shinn, } *Committee.*

The report was accepted and approved.

Professor Procter then read the following memoir of Professor Edward Parrish, on behalf of the committee on deceased members, which was attentively listened to. After a number of expressions of the deep and affectionate regard in which he was held, the memoir was directed to be published in the Journal:

## EDWARD PARRISH.

Edward Parrish, the subject of this memorial, was born in Philadelphia on the 31st of May, 1822, at the old homestead in Arch street below Fourth, and was the seventh son of his parents, the late eminent physician and surgeon, Dr. Joseph Parrish, and Susanna, daughter of John Cox, of Burlington, N. J., all members of the Society of Friends.

He was educated in the Friends' School in Philadelphia, at that time among the best attainable, where he is said to have been well instructed in the elementary studies, and to have acquired a fair knowledge of the higher branches and the classics.

He early manifested an aptitude for scientific pursuits, and in the year 1838 was entered as an apprentice in the pharmaceutical store of his brother Dillwyn, at the south-west corner of Eighth and Arch streets. He is reported to have been attentive and faithful in the discharge of his shop duties and responsibilities, and, availing himself of the favorable opportunities afforded in the store and at the College of Pharmacy, near by, he acquired an excellent knowledge of his business, for which his taste and inclination were well adapted. His first course was under the instruction of Professors Franklin Bache and Joseph Carson, and his last under Profs. Carson and William R. Fisher, in the session 1841–42, Prof. Fisher occupying the chair of chemistry. In the Spring of 1842 Edward Parrish took his degree in pharmacy in the Philadelphia College, having written his thesis on Statice Caroliniana, which was published in Vol. XIV American Journal of Pharmacy.

In 1843 he purchased the drug store at the north-west corner of Ninth and Chestnut streets, previously conducted by George W. Ridgway, and which was contiguous to the University of Pennsylvania. Here he continued to practice his business until 1850. During this period he contributed several papers to the "Journal," and in 1848, in connection with his assistant, W. W. D. Livermore, a paper on Collodion, which was the first notice of that preparation occurring in our Journal, the discoverers at Boston not having published their process. During the same period two events, important in their influence on his life, transpired—one, his marriage with Margaret, the daughter of Uriah Hunt, of Philadelphia, who continued his closest friend and companion until her death, a few months before his own; the other, the inception, if not the establishment of his "School of Practical Pharmacy."

His proximity to the University brought him in constant contact with medical students and their wants, and was the origin of that favorite branch of his business which consisted in supplying the outfits of country practitioners.

Undoubtedly this intercourse with students, exhibiting to him as it did the serious disadvantages experienced by young physicians in entering on their practice, in rural districts and even in cities, without a more practical acquaintance with pharmacy, gave him the initial idea of his "Practical School," where young men could be taught to prepare the medicines of the Pharmacopœia by actual manipulation, accompanied by lectures on pharmacy and examinations by questions.

Accordingly, in the Autumn of 1849 he issued a prospectus addressed to medical students, was encouraged to proceed by the Professors of the University, and gave his first course of instruction to 14 students in the rear of the building at Ninth and Chestnut.

Soon after this time he removed from this locality and entered into business with his brother Dillwyn, at Eighth and Arch streets, where his "Practical School" was better accommodated and gradually increased in importance, being addressed to pharmaceutists as well as to medical students. In furtherance of his school he determined about this time to take a course of practical instruction in analysis in the laboratory of Prof. Booth, and afterwards a medical coursein the University of Pennsylvania.

Feeling the need of a text-book for his class, the wants of which were not met by the treatises in use, he decided to write a book addressed to medical and pharmaceutical students, and in the year 1855 he published the first edition, under the title of "Introduction to Practical Pharmacy," followed in 1859 and in 1864 by other more extended editions. In preparing the last, the author aimed to make it not only a treatise on practical pharmacy, but to include as well a formulary and a chapter on organic chemicals, useful in the shop, which caused a change in its title. The peculiar tendency of his mind to group and generalize had full sway during his preparation of this book, leading him to tabulate and classify the officinal formulæ, considering them together rather than impressing his individual experience on each.

Whatever place this work may take in science, there is no doubt that it met admirably the wants of the classes for whom it was prepared, and must be set down as a successful one, both as regards the good it has done and the profits that have accrued from its sale.

In 1857 his lecture on "Summer Medical Teaching in Philadelphia," given introductory to his course on pharmacy to medical students, was published. In this, after speaking of his earlier efforts in establishing his "School," he says: "Twenty-three courses of lectures and practical exercises (since 1849) have since been given to an aggregate of 299 medical students, drawn from nearly every State in the Union, and from British America. After near eight years' experience as teacher of this speciality, I need offer no apology for giving some general conclusions I have arrived at in regard to its utility as a branch of medical education, and the best means of imparting it." Again he says: "In claiming the position of a pioneer in this sort of teaching [in the U. S.], I do so with the confident belief that the time is approaching when its importance will be fully recognized, and when the education of the physician will be universally regarded as quite incomplete unless he has enjoyed the advantages of a more or less thorough practical teaching in pharmacy."

After describing the arrangement of his lectures, examinations and practical lessons, in which classes of 12 students in three sub-classes worked together and profited by each others labors, he says: "Classification in this, as in every other branch, gives great facility to the teacher and the learner, and by the aid of a text-book I have prepared with special reference to the course, I can promise you, in the 12 weeks which follow, the opportunity to obtain a sufficient knowledge of pharmacy to give you a fair start on the road to proficiency in the art of prescribing, preparing and dispensing medicines."

These few extracts will show that Edward Parrish had made considerable advancement as a teacher in imparting instruction to medical students before subsequently entering our faculty, and had carried on his school with an enthusiastic belief in its usefulness and efficiency.

The pharmaceutical meetings of the College (which were an offshoot from the interest awakened by the Pharmacopœia Committee of Revision of 1840) were frequently attended by Edward Parrish after he graduated; and, although his written communications to their proceedings were not numerous, he often gave interest to them by his practical remarks and by the exhibition of attractive objects. Being a ready speaker, he delighted on these occasions to bring forward subjects for discussion, and often without preparation added greatly to their interest. His genial manners, and earnest desire to render these meetings open to all who would come—members, students or strangers—assisted in prolonging their existence after they decreased in importance, from the cessation in great measure for several years of the experimental essays, which in the beginning had given character and importance to their transactions.

Edward Parrish early determined to pursue a scientific career, aspired to a position in the schools, and was deeply impressed with a belief in his ability to teach. When the chair of Materia Medica was vacated in 1850 by the retirement of Dr. Carson, he was a candidate for the vacancy, but the traditional influence of the idea that that chair was best filled by a physician, led to the election of Dr. R. P. Thomas. In the Spring of 1864, however, on the death of Dr Thomas, he was elected to fill the vacancy, as Professor of Materia Medica, and continued in that office till 1867, when he exchanged chairs with Prof. Maisch, and, assuming the duties of the Professorship of Practical

Pharmacy, more in accordance with his inclination and habits, continued until his decease to lecture annually to increasingly large classes.

Professor Parrish was always popular with the students; his free and open manner, the interest he took in the class individually and collectively, and, above all, his good delivery as a speaker, rendered him a favorite and gave him influence. For several years prior to his death other engagements had trenched greatly on the time required by his professorial duties, but in 1871 he was relieved from these, and, had his life been spared to continue the increased devotion to his science which this relief had promised, there is no doubt that his career would have been increasingly useful as a teacher of practical pharmacy.

Edward Parrish was elected a member of this College in 1843, became a member of the Board of Trustees in March, 1845, and was its Secretary from 1845 to 1852. In 1854 he was elected to the Secretaryship of the College, and continued in that office until he entered the Faculty, in 1864. In 1847 he was one of a committee of fifteen members to report on the Pharmacopœia previous to the convention of 1850, and in 1859 and 1869 he acted on similar committees previous to the conventions of 1860 and 1870. He was also a delegate to the Pharmacopœia Convention of 1860 for Revising the Pharmacopœia, and in 1869 was one of three delegates appointed by our College to the International Pharmaceutical Congress of Paris, but was not able to attend. In 1850 he was elected a member of the Publishing Committee of the College and continued in it until 1870. His contributions to the Journal during this period were about forty in number, and embraced, besides papers on materia medica and pharmaceutical preparations, essays of a biographical and historical character, notes of travel, ethical criticism, and reports on various subjects. During a part of this time he also wrote editorial notes and criticisms for the Druggists' Circular, N. Y.

Prof. Parrish became a member of the American Pharmaceutical Association at its first meeting in Philadelphia, in 1852, was elected Recording Secretary at the Boston meeting, in 1853, First Vice-President in 1866, and President of the Association at the meeting of 1868. He acted on many of its committees, assisted in the revisions of the Constitution and other labor, and, when present, always took an active part in the discussions, as the published minutes give evidence. Quite a number of papers and reports, scattered over the twenty volumes of Proceedings, mark the interest he manifested in this way in the advancement of pharmacy.

The tendency of his mind may be seen by a glance at the papers—but few are on physical or chemical investigation, the greater part being such as could be written by reflection and study, without experiment. His ready pen was always at command to bring together in order the results of reflection and inquiry, whether these related to the ethics of pharmacy, the by-laws of the Association, or the advantages of education, general or special. Moreover, though not himself possessed of an inventive genius, he delighted in new inventions or improvements in pharmacy, and was always ready to encourage their authors, and to be the means of spreading a knowledge of them by tongue or pen.

In 1858 Prof. Parrish made a hurried trip to Europe, but limited his travels to England and Scotland, with a brief tour to Paris, Strasburg and the Rhine, availing himself of the opportunity to make acquaintance with pharmaceutists and their institutions. In a series of letters published in 1859, in the "American Journal of Pharmacy," he gave some of the results of this voyage.

About this period he published a little book entitled "The Phantom Bouquet," which treated of the art of skeletonizing leaves and other parts of plants.

In the year 1864 the project of establishing a collegiate institution under the direction of the Society of Friends, which had long been entertained by some of its members, culminated in obtaining the Act of incorporation of Swarthmore College, and the purchase of a farm site of 93 acres in Delaware Co., Pa. Deeply impressed with the importance of more thoroughness in education and with the newer views in regard to the manner and means of educating the youth of both sexes, he gave the subject deep attention, and, entering the field in 1862, became one of the most successful pioneers in the work of advocating the claims of Swarthmore to those who held the means for its completion; serving as Secretary to the Board of Managers from December, 1864, until the completion of the building in 1868.

When finally the massive structure was completed, and the corps of professors and teachers with the pupils were gathered within its walls, Prof. Parrish was officially declared the first President of Swarthmore College, and continued in office during nearly two years.

We cannot do better than give the following extract from the last report of the managers of that institution in alluding to the decease of our friend: "One of the pioneers engaged in enlisting the minds of Friends in the great work of founding a college, he was a most earnest and indefatigable laborer in the cause, and it was largely owing to his personal exertions that success so early crowned our efforts. Very many of the stockholders will remember that their interest in Swarthmore was first awakened by his voice and pen. By conversation in that wide circle of Friends in which he moved, and where he was so much beloved; by extensive correspondence; by public addresses, and by his work entitled "Education in the Society of Friends," he did much to arouse attention to the importance of establishing among us an institution for higher culture—culture not of the mind alone, but of the heart as well; and thus, in connection with his untiring efforts to secure the means necessary to carry out this design, he performed a labor destined to have a lasting influence for good upon our religious Society and upon the community at large."

On the several occasions when legislative encroachment on the best interests of pharmacy needed resistance, or when legislative aid and protection were to be sought, our friend took an active and efficient part; and on the passage of the Pharmacy Act of 1872 he was one of the five commissioners appointed by the Mayor of Philadelphia to carry the law into effect. The labor incident to the organization of the Board, and the subsequent service required in the examination of numerous assistants seeking registration under this law, protracted till late in July, doubtless had some influence in undermining his health,

not yet recovered from the severe shock it had received by the sudden death of his wife, and probably contributed to his approaching end.

In the following month (August, 1872), the Government of the United States, desiring to settle some difficulties with certain Indian tribes, in the direction of peace, appointed Prof. Parrish and Captain Alvord as Commissioners. In entering upon this last act of his life he was advised by his family, who believed his health, then below its ordinary status, would be benefitted by the journey. But the unforeseen exposure incident to a long and rough stage ride through the wilderness proving too heavy a tax on his impaired vitality, offered him a prey to the malarial fever of the country, and before he could fully accomplish his mission of peace he fell a victim to the climate, in the 51st year of his age.

Edward Parrish possessed social qualities of a high order: his conversational powers were good, his information on ordinary subjects general, his interest in modern progressive ideas considerable, and he was never happier than when his friends were around him in the family circle interchanging ideas.

His home instincts were strong: his wife and children ever occupied a prominent place in his plans and arrangements; for them no sacrifice was too great, no pleasure too rich, no necessity too expensive, and whether fortune smiled on him or frowned he was the same kind and liberal husband and father, the same sympathetic brother and friend. There was nothing mean or contracted in his nature, and in business his competition was unmarked by bitterness or personality.

Prof. Parrish was by nature ambitious of distinction among his fellows, yet his yearnings after power or place were influenced by a spirit at once mild, benevolent and lovable. His intellect, which was clear and forcible, he had cultivated by reading and conversation. Had it been steadily concentrated in the line of his profession, it would have led him to honors far higher than those to which he attained; but, by directing his attention to too many objects, his efforts lost in power and thoroughness what they gained in variety and popularity.

Although originality was not a prominent trait among his mental characteristics, his mind was active and ready; he was quick to catch ideas when presented, manifested much excellence of judgment in adapting them to his purposes, and it was generally with graceful acknowledgments that he rendered tribute to others when occasion required. It was in his manner of grouping and classifying facts, and of lucidly presenting subjects to his readers, that his personality was most deeply impressed on his literary labors in pharmacy.

Nature had endowed him with a gift of speech well adapted to the platform, and some of his ablest efforts have been introductory and valedictory addresses. As a teacher of pharmacy in the lecture-room, he loved to array the leading facts in generic groupings on the blackboard, using the more prominent individual substances for special comment on the table, often bringing in anecdote to enliven his subject. Less happy as a manipulator than as a speaker, Professor Parrish trusted more to his ability to convey his meaning by figures of speech than to annoying and often troublesome demonstrations by practical experiments; nevertheless he was conscious of the important and valuable aid derived from object-teaching and the exhibition of actual processes, and in his

last course introduced several important improvements in his methods of illustration.

As a business man, his mind was too much given to outside matters to push his interests by close personal attention, during a large portion of his business life, and they not unfrequently suffered from too much devotion to other objects and interests wholly disconnected with his own personal advantage.

Prof. Parrish was known among pharmaceutists abroad, but more especially in England, chiefly through his writings, which are held in much esteem, and the Pharmaceutical Society of Great Britain and the British Pharmaceutical Conference have each shown their appreciation of him by honorary memberships; whilst at home, besides being in membership with various societies, his name is as a household word among the members of the pharmaceutical and medical professions.

He was a consistent member of the Society of Friends, took much interest in various labors connected with it, and was engaged in carrying out one of its testimonies when the grim messenger came to him unexpectedly, far away from home and kindred, in the western wilderness. But our friend had so lived that he was able to accept the grave summons with equanimity, and, bidding a mental adieu to his distant loved ones, he calmly drew his mantle of religious faith around him, and resigned himself to the will of Providence without a murmur.

Prof. Parrish leaves four sons and a daughter to keep green his remembrance and to imitate his virtues.

Caleb A. Needles called the attention of the College to the fact that "An Act relating to the licensing of Druggists was before the Legislature at Harrisburg," and that it contained some provisions which were infamous. Professor Maisch read a copy of the Act, and it was decided that immediate action on the part of the College was necessary, and the chairman appointed Charles Bullock, John M. Maisch, James T. Shinn, Wm. C. Bakes and Caleb R. Keeney, a committee to use every exertion to prevent its passage, although a doubt was expressed on the part of many that an act so unjust and absurd in many particulars, could receive the Governor's signature.*

Professor Procter presented to the College, from Dr. W. Kent Gilbert, a valuable botanical work, entitled "Hortus Elthamensis, Auctore J. J. Dillenia, Londini 1732," which was received with thanks, and the Secretary directed to present the thanks of the College to him for the gift.

The following letter from Charles Bullock, Secretary of the College, was read:

"*To the Philadelphia College of Pharmacy:*—

"The undersigned, having served the College in the capacity of Secretary for a number of years, feels that the time has arrived for him to request to be relieved from that service, and respectfully requests that his fellow-members will accept this his resignation from that post.

"With unabated interest in the College, your fellow-member,

*March* 31*st*, 1873. CHARLES BULLOCK."

The Secretary's resignation was accepted, and the thanks of the College are due him for his disinterested efforts on her behalf.

The annual election being ordered, the following members were elected to serve the ensuing year:

* The act was defeated in the House of Representatives.

*President*, Dillwyn Parrish.

1*st Vice-President*, William Procter, Jr.

2*d Vice-President*, Robert Shoemaker.

*Treasurer*, Samuel S. Bunting.

*Recording Secretary*, William J. Jenks.

*Corresponding Secretary*, Alfred B. Taylor.

*Trustees*, Robert Bridges, M. D., Joseph P. Remington, T. Morris Perot, William B. Webb, James T. Shinn, Daniel S. Jones, John M. Maisch, Thomas S. Wiegand.

*Publishing Committee*, Thomas S. Wiegand, John M. Maisch, William Procter, Jr., James T. Shinn, Charles Bullock.

*Committee on Sinking Fund*, Thomas S. Weigand, T. Morris Perot, James T. Shinn.

*Editor*, John M. Maisch.

*Librarian*, Thomas S. Wiegand.

*Curator*, Joseph P. Remington.

Charles Bullock was unanimously elected a trustee in place of William J. Jenks, appointed Secretary.

The Librarian and Curator each made a verbal report, in which they stated that some progress was being made in re-arranging the Library, and refitting and enlarging the Cabinet. On motion, then adjourned.

JOSEPH P. REMINGTON, *Secretary pro tem.*

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## Minutes of the Pharmaceutical Meetings.

Minutes of the Pharmaceutical Meeting held April 15th, 1873.

Meeting called to order, Wm. McIntyre in the chair. The reading of the minutes of the last meeting was dispensed with.

The following books and pamphlets were presented to the College: "Proceedings of the American Pharmaceutical Association," vol. 20th, containing an account of the meeting held in Cleveland, Ohio; "The Year Book of Pharmacy," and the "Transactions of the British Pharmaceutical Conference Ninth Annual Meeting;" "Proceedings of the Fourth Annual Meeting of the California Pharmaceutical Society;" "Proceedings of the Third Annual Meeting of the Vermont Pharmaceutical Society," and "Des Aconits et de l'Aconitine," par Charles Patrouillard.

Prof. Maisch, on behalf of Messrs. G. Mallinckrodt & Co., of St. Louis, presented a sample of carbazotate of ammonia. This carbazotate of ammonia has been recommended by Dr. Dujardin-Beaumetz, of Paris, *as a substitute for quinia in the treatment of fevers. The donors write that it has been used by a number of physicians in St. Louis, and with marked success in some severe cases where quinia and arsenic had failed. These physicians have promised to report their experience through the Journals, and it is believed, from the statements made thus far, that if this preparation does not prove a substitute for, it will at least become a valuable adjuvant to quinia in

*See page 221 of the present number.

the treatment of intermittent fever. The dose is from one to two-thirds grains per day, given in the form of pills, made with any simple excipient.

Prof. Maisch showed specimens of the bark of Eucalyptus globulus, which appears to be used in Europe for similar purposes as the leaves. Attention was also drawn to the variation in the shape of the latter.

A specimen of the oleate of mercury and morphia made by the process of Mr. Charles Rice,* was shown, which was at first nearly transparent, but probably through its exposure to the light and air, had separated a heavy precipitate. It is perhaps necessary to protect this preparation against the influence of the agents mentioned.

From a large collection of drugs and plants, received from M. J. Dondé, of Merida, Yucatan, Professor Maisch exhibited to the meeting preserved specimens of Okra, the green fruit of Hibiscus esculentus, which is cultivated to some extent in the United States, and used for its mucilaginous properties.

Preserved and dried specimens of *Semillis marannon*, the Cachou nut, Anacardium occidentale, were also shown. After fructification, the peduncle enlarges considerably, forming an edible spurious fruit, bearing upon its apex the true fruit, a kidney-shaped nut, having a seed-like appearance, which contains, under the pericarp, a very acrid and poisonous oil, containing cardol; the kernel is edible, of a pleasant nut-like flavor, and may be obtained by roasting the fruit, whereby the acrid oil is destroyed. Of a similar nature and similar properties are the so-called Malacca nuts, the fruit of Semecarpus anacardium, which is almost heart-shaped. The acrid oil of the latter has a black color, is used in the East Indies like ink, and was lately recommended for imparting a black color to wax candles.

Mr. Boring stated that he had been unable to find more than one sample of yellow mustard which had not been colored with turmeric; with all, except the one, known as Frühauf's Russian mustard, the characteristic brown red color is produced on the addition of solution of boracic acid; while many of the samples were not affected by iodine solution, several of the most popular brands show by this test a considerable quantity of starch; in these cases an artificial strength appears to be imparted by capsicum. Yellow mustard, the color of which is heightened by turmeric, deserves to be regarded with suspicion until its freedom from other adulterations has been established.

Prof. Maisch exhibited a piece of soap which had been made from fresh palm oil in Liberia, at the suggestion of Edward S. Morris, Esq. Although of a dark color, the soap has a delightful violet odor, being vastly superior in this respect to the soap made here from imported palm oil, which, in consequence of long keeping and exposure, is always rancid.

Oil of valerian and several compounds of valerianic acid were exhibited, which were made from valerian root, eight or nine years ago. These valerianates are greatly superior in odor to those obtained by the oxidation of amylic alcohol. In connection with this subject it was stated that the valerian root of our commerce, that known as English valerian as well as the German, is frequently very unclean, containing sometimes perhaps 25 to 30 p. ct. of dirt enclosed between the rootlets. It appears that this is more frequently the case

* See American Journal of Pharmacy, January, 1873.

with valerian grown in damp localities, while the shorter and lighter colored roots of the plant, growing in dry situations, do not favor such intentional carelessness.

Professor Maisch exhibited a number of plates from the imperial printing office at Vienna, obtained by what is known as the nature printing process. An impression in lead is obtained by placing leaves or similar thin objects, between plates of lead and steel, and subjecting them to powerful pressure; from a cast made of this impression, an electrotype is subsequently obtained, which is used for printing in the ordinary way. The prints exhibit the shape and the venation of the leaves perfectly.

Mr. Brown stated that he experimented in making syrup of lactophosphate of lime with the substitution of glucose for sugar; in his experience, this obviated the precipitation frequently met with. The dilute lactic acid of our commerce was described as being the concentrated or the officinal acid reduced to 4° Beaumé, by the addition of distilled water.

Then adjourned. CLEMMONS PARRISH, *Registrar.*

## Pharmaceutical Colleges and Associations.

THE NEW YORK COLLEGE OF PHARMACY.—At the commencement, held March 31st, the following gentlemen received their diplomas, conferring the degree of Graduate in Pharmacy:

Starr H. Ambler, Chester D. Ayres, Alanson T. Briggs, William Falke, Victor E. Forbes, John Gannon, Benjamin W. Goode, John B. Hasslocher, William F. Henes, Charles Holzhauer, Julius Kalish, Warren S. Kissam, Albert F. G. Kuehn, David Master, Jr., Emil Mayer, Wilhelm Meschenmoser, Joseph Meyer, Benjamin Morje, Domingo Peraza, John F. Peterman, Charles A. Robbins, William G. Rothe, Edward W. Runyon, Charles F. Schleussner, C. Albert Schreck, Gustavus Seelbach, E. Y. Shearer, Nicholas Slipner, Henry Syvarth, John Vanderbeugle, Eugene C. Van Namee, Jewett W. Watson, Chas. H. Wiberly.

The Valedictory Address was delivered by Prof. W. De F. Day, M.D.

A special meeting of the Board of Trustees was held Thursday evening, the 17th, at 7 P.M., in order to ratify the arrangement made by the Lecture Committee for the 44th course, and receive report of Curators and Secretary in regard to engaging a suitable person as Clerk of the College.

The Lecture Committee had engaged Prof. Chas. F. Chandler, Ph. D., as Professor of Chemistry, W. De F. Day, M.D., as Professor of Materia Medica and Botany, P. W. Bedford, Esq., as Lecturer on Pharmacy, and Chas. Froebel, Esq., as Adjunct Instructor for Analytical and Pharmaceutical Chemistry and Practical Botany.

The Curators and Secretary united in recommending Mr. Chas. Froebel as Clerk of the College, Assistant Curator and Registrar.

The reports were accepted and both committees empowered to complete their arrangements.

A conversational meeting of the members of the New York College was held on the same evening, at 8 P.M.

Notwithstanding the rainy and stormy night, the new lecture-hall of the College was comfortably filled by members and their friends, to hear the very interesting lecture of Prof. C. F. Chandler, Ph. D, on Modern Chemistry. The lecture was listened to with great attention, and was delivered in a clear and instructive manner.

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The Alumni Association of the College of Pharmacy of the City of New York held its annual meeting on Thursday evening, April 3d, when twenty-five new members were elected.

President Robbins read his annual address. Papers were read by Mr. Jules L. A. Creuse on "A New Series of Tasteless Iron Combinations," and by Mr. B. F. McIntyre on "The Fluid Extract of Ipecac of the New Pharmacopœia." Both papers are published in the present number of this Journal.

The following officers were elected for the ensuing year: President—D. C. Robbins; Vice Presidents—G. C. Close, O. C. Weinmann, Hampden Osborne; Treasurer—Theobald Frohwein; Secretary—J. F. Main; Executive Board—B. F. McIntyre, G. W. C. Phillips, J. Vanderbeugle, J. L. A. Creuse, L. M. Rice, P. W. Bedford; Delegates to the Meeting of the Pharmaceutical Association—L. M. Rice, H. C. Porter, Ed. Henes, P. W. Bedford, H. Osborne.

Several amendments to the Constitution were proposed and referred to the next annual meeting. It was resolved to hold quarterly meetings for the purpose of friendly intercourse and exchange of ideas on pharmacy, the meetings to be held on the same evenings as those of the Executive Board, and a Committee of three was appointed to secure papers to be read at these meetings.

The Association then adjourned.

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The Maryland College of Pharmacy held a stated meeting April 10th, the President, J. F. Moore, in the chair.

The minutes of the last annual meeting were read and approved. A resolution of thanks to Prof. J. J. Grahame, for his excellent and very edifying Annual Address, was adopted, and the Secretary was instructed to have the address published in pamphlet form.

The following gentlemen have been elected Professors for the ensuing year, viz.: Dr. J. F. Moore, Professor of Pharmacy; Dr. Claude Baxley, Professor of Botany and Materia Medica, and Dr. Wm. Simon, Professor of Chemistry and of Analytical Chemistry.

Letters were received from the two gentlemen upon whom the degree of Doctor of Pharmacy had been conferred, acknowledging the honors.

Three special committees reported progress and were continued.

Mr. John P. Pignett presented an interesting essayon "Tincture of Chloride of Iron," detailing a process by which it can be made in less than twenty-four hours.

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The St. Louis College of Pharmacy.—After the lectures had been suspended for several years, on account of the departure of some of the professors from St. Louis, this College became reorganized in the Fall of 1871, and commenced its lectures, during the latter part of October, with about one dozen students. The number had increased during the last season to 23, of whom

seven graduated; the examination was conducted by written and oral questions. For the next Summer, a class in chemistry has been organized by the Professor of Chemistry, Dr. Theo. Fay, who has also provided himself with abundant apparatus and utensils to illustrate his lectures by experiments.

It is to be regretted that the lower house of the Legislature of Missouri has not yet passed the "Act to regulate the practice of Pharmacy in the City of St. Louis," which has been adopted by the Senate; but in all probability the law will be taken up again and passed at the adjourned session during next Winter —especially since several flagrant cases of ignorance by drug-store keepers have been recorded of late, which have aroused the public to demand legislation in favor of the protection of their lives against ignorance.

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Tennessee College of Pharmacy.—At the meeting of the Tennessee Medical Society, held at Nashville April 2d, the following communication was read:

*Nashville*, April 2, 1873.

To the President and Members of the Tennessee State Medical Society:

*Gentlemen*,—Knowing that the advancement of pharmacy is of equal interest and importance to the physician and pharmacist, and feeling that the medical profession will now, as heretofore, lend its aid to the advancement of all true progress in either science, I desire to call your attention to the fact that a "College of Pharmacy" has been organized in this city, with fair prospect of success; and that the druggists of this State are expected to assemble here next month to organize a "State Pharmaceutical Society," and take such other steps as may be necessary to "encourage proper relations between druggists, physicians and the people at large, to improve the science and art of pharmacy, suppress empiricism, and secure the enactment of laws regulating the drug business in our State."

Hoping these enterprises may meet with encouragement and support from your honorable body, I remain, Very truly, yours, &c.,

Benj. Lillard, Phar. D.,
*President Tennessee College of Pharmacy.*

The Tennessee Medical Society, of which Dr. Lillard was elected an honorary member, pledged the encouragement and support of its members, individually and collectively, to the Tennessee College of Pharmacy and the proposed State Pharmaceutical Association.

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The Mississippi State Pharmaceutical Association held its annual meeting in Vicksburg, April 9th, the President, M. F. Ash, in the chair; J. T. Buck, Secretary. A large delegation from all parts of the State was present.

In his address the President urged upon the members, as their professional duty, integrity of character and a proper appreciation of their responsible duties. Attention was directed to the code of ethics, to the progress of pharmacy, the growth of the Association, the need of reform in the practice of pharmacy, and the benefit to be derived from unity of action.

The question of legislation affecting the practice of pharmacy was discussed at length, and finally referred back to the committee.

After the election of new members, the following officers were elected for the ensuing year:

President—Hampden Osborne, Columbus; Vice President—J. S. Caire, Okolona; Recording Secretary—P. Keefe, Vicksburg; Corresponding Secretary—J. S. Mosely, West Point; Treasurer—M. F. Ash, Jackson.

The new officers being duly installed, a motion prevailed to adjourn, to meet in the City of Columbus on the second Wednesday in April, 1874.

JNO. T. BUCK, *Secretary.*

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PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—At the pharmaceutical meeting held April 2d, Mr. A. F. Haselden presiding, Mr. Martindale read a paper on a "New Basis for Suppositories and Pessaries," and exhibited specimens made with the proposed base, which consists of equal parts by weight of oleic and stearic acids. The author considers such a mixture very superior to those in general use, for the following reasons: 1. It has a very low fusing point, and readily melts at the temperature of the body. 2. The suppositories leave the mould without difficulty, owing to the considerable expansion when heated, and the consequent contraction on solidifying, estimated by the author at more than 11 per cent. 3. The basis is a solvent of alkaloids (morphia, atropia, &c.), and is readily absorbed by the epidermis and mucous membrane, at least so far as the oleic acid is concerned. 4. On account of the partial crystallization of some of the stearic acid, the suppositories are firm, and can be placed in their position without difficulty, not being elastic, brittle or yielding in any way. 5. The proportions of stearic and oleic acids can be varied to suit the temperature of Summer or Winter and also the other ingredients prescribed with them.

A lengthy and very interesting discussion then took place on the proposed appendix to the British Pharmacopœia, after which Mr. Thomas Greenish read a paper on the "Mustard of the Pharmacopœia," reviewing the officinal formulas, since 1788, for Cataplasma sinapis, and suggesting an alteration in the manipulation directed in the British Pharmacopœia, so as to avoid the coagulation of the myrosin, and consequently develop the full virtues of the mustard cataplasm. Mustard flour is made in England by crushing black and white mustard seeds separately, and then mixing them in definite proportions.

Professor Bentley said that all the mustard he had examined contained a notable quantity of black mustard seed. White mustard seed alone would not at all meet the desire of those who use mustard. Black mustard is too powerful, too pungent; but, if mixed with white mustard, an agreeable flavor is obtained.

Mr. Bland believed that exaggerated notions prevailed with regard to the adulteration of mustard, and that the principal obstacle in the way of getting the genuine article had been the unwillingness to pay a decent price for it. With regard to the fixed oil that had been recommended as a remedy for rheumatism, he was not inclined to attribute to it any great value.

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PHARMACEUTICAL SOCIETY OF PARIS.—Mr. Bussy presided at the meeting of March 5th. Mr. Méhu claimed for Professor G. Dragendorff, of Dorpat, and his co-laborers, Bluhm and E. Masing, the discovery of the alkaline cantharidates, their preparation, analysis, &c. As early as 1866, and again in 1869, these chemists have described the application of alcohol in preparing cantharidate of potassium, but considered the use of water as far preferable.

A complaint was made that at Caen the brothers and sisters of a deceased pharmacist carried on the business with the aid of an examined assistance; it was stated that in the neighborhood of Paris it is customary to accord to all heirs, children brothers and sisters, as well as to widows, the same delay under

the same conditions; the authorization is usually granted by the prefect of police upon a favorable recommendation of the Ecole de Pharmacie.

Mr. Fr. Wurtz read a report on commercial propylamina, which has lately been experimented with by Dr. Dujardin-Beaumetz. This so-called propylamina had been obtained from herring pickle, and has long since been proven, by Winckler, to consist mainly of trimethylamina, identical with that obtained by him by synthesis. In 1869 Sylva prepared propylamina from propylic alcohol, and found its chemical properties to be analogous to those of trimethylamina and of Gautier's isopropylamina; the three bases, however, differ in their boiling point and in the crystalline form of their salts. Trimethylamina boils between 4 and 5°, propylamina between 49 and 50°, and isopropylamina between 31 and 32° C. The three bases are isomeric, consisting of $C_6 H_9 N$. The reporter concludes that the commercial so-called propylamina is merely a more or less pure aqueous solution of trimethylamina, without definite strength, which should be replaced by a standard solution of the pure alkaloid, or by its crystallized muriate, if the salt should possess the same medicinal properties as the former. For medicinal purposes it is recommended to convert methylic alcohol into methyl iodide, to heat the latter under pressure with ammonia, to wash the crystals of iodide of tetramethyl-ammonium with cold distilled water, in which they are nearly insoluble, to remove ammonium iodide, and finally to decompose by lime, collecting the gas in water; this solution should then be brought to a definite strength. The muriate is easily prepared from it by saturating with hydrochloric acid; the salt recently used with success by Dr. Dujardin-Beaumetz was made by the process described.

Mr. Petit remarked that he has frequently found commercial propylamina to be richer in ammonia than in other bases. The alkaline strength was observed to vary between 2 and 52 centigrams in the cubic centimeter; the equivalent weight of ammonia and propylamina being 17 and 59 respectively, the amount of the former may be ascertained by neutralizing a given quantity with hydrochloric acid and weighing the residue left on evaporation.

Mr. Lefort remarked that muriate of propylamina is very soluble in absolute alcohol, while muriate of ammonia does not dissolve therein to an appreciable extent.

Mr. Lefort read an essay on protiodide of mercury, an abstract of which is published on page 218 of this number.

Mr. Bussy stated that he had found several samples of sulphovinate of sodium to contain sometimes large quantities of bisulphate of sodium, which salt was present not perhaps in consequence of intended fraud, but rather on account of a prolonged exposure to a high temperature in the presence of water.

Mr. Limousin said that sulphovinate of sodium is very hygroscopic, and that if the absorbed water is expelled at a temperature of 100 to 120° C., the salt is partially decomposed into bisulphate of sodium and alcohol.

Mr. Jungfleisch added, that on evaporating large quantities of solutions of this salt, the water favors the decomposition spoken of, the solution sometimes becoming strongly acid. The decomposition can be prevented only by using a large excess of alcohol, whereby Mr. Limousin said an excellent product is obtained, but at too high a price.

Prolonged contact with water alone favors this decomposition, and Mr. Boudet called attention to the danger of the occurrence of decomposition, if the sulphovinate is prescribed in large quantities.

# Editorial Department.

An Explosion of a Mixture of Chlorate of Potassium and Tannin, we are informed, occurred again in this city on the sixth of April last, and the dispenser was severely injured thereby in the face and on the hands. On page 470 of the *American Journal of Pharmacy* for 1869, a similar case is recorded, and others have been noticed by medical, pharmaceutical and chemical journals of this country and elsewhere.

The explosive nature of mixtures of chlorate of potassium with combustible and oxidizable materials is well known to chemists, and chemical works usually draw attention to the danger attending the mixing of such articles in a dry state in a mortar or with pressure. Chemical students are familiar with the lecture experiment of producing detonations by triturating the chlorate with some sulphur; such detonations unaccompanied by danger, are liable to occur even on rubbing, with some pressure, chlorate of potassium in a dusty mortar. The experiment, however, becomes at once dangerous, as soon as a sufficient quantity of a combustible article has been incorporated with the powdered chlorate, and the explosiveness of such mixtures increases with the combustibility of their ingredients.

The blasting and so called white gun-powders which were recommended some twenty years ago, are such mixtures. The former contain red sulphuret of arsenic or ferrocyanide of potassium, or both, and their danger was made manifest by an accident which happened to the inventor and patentee, Mr. Callow, who was rendered a cripple for life. Such explosions are not only liable to take place by rubbing or by a blow, but also on the addition of acids sufficiently concentrated to decompose a portion of the chlorate and locally heat the mixture. Strong sulphuric acid is especially dangerous from the last named causes.

Whenever chlorate of potassium is prescribed in the form of powder mixed with *any organic* or with an *oxidizable inorganic* compound, the only safe way to dispense such a prescription is to triturate the materials *separately* until they are reduced to a fine powder, and then mix the powders intimately upon paper without friction. In preparing gargles and other liquid medicines containing such ingredients, the latter should never be mixed in a mortar until after a sufficient quantity of water has been added.

But even though such *dry* mixtures may be prepared by the pharmacist without danger to himself, we question whether the physician is justified to prescribe them, considering the danger to which he exposes his patient. Several years ago, we remember that such a mixture exploded, from some cause or other in the house of the patient, happily, however, without doing any injury, except setting fire to a few contiguous articles.

## OBITUARY.

John Torrey, M. D., LL. D., was born in New York in the year 1798, and died there March 2d, aged 75 years. He received his degree of M. D. at the College of Physicians and Surgeons of New York and served from 1827 to 1854 as Professor of Chemistry and Botany in the same College, after having previously held for three years the position of Professor of Chemistry in the military academy at West Point. Since 1853 to the time of his death he was the Chief Assayer in the United States Assay Office in New York.

Dr Torrey was an indefatigable laborer and attained more than ordinary success in various branches of science; but his most important labors were in the field of botany. As early as 1817 he published a catalogue of the plants growing within 30 miles of New York, subsequently a "Flora of the Northern United States," and the botanical part of the natural history survey of the State of New York. In connection with his former pupil, Professor Asa Gray,

he elaborated the botanical collections of the exploring expeditions of the National Government and published, since 1838, the "Flora of the United States," which work we believe, has not been completed yet.

He was kind and genial in his intercourse with others, and always ready to cheer and aid the student with his valuable counsel.

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Justus von Liebig died at Munich on the 18th day of April, at the age of 70 years. He was born May 8th, 1803, at Darmstadt, where his father carried on a business in paints and druggists' materials, and by experiments for preparing paints and chemicals incited at an early period his son's inclination and fondness of experimental chemistry and his study of chemical literature, of which he found a good supply at the Court Library at Darmstadt. Determined to become a chemist, Liebig was apprenticed in 1818 to an apothecary in Heppenheim, but soon left him (in 1819) to go to the university of Bonn, and afterwards to Erlangen, to study the natural sciences, and particularly chemistry. But his favorite science was at that time little cultivated at the German Universities; in 1822 he went to Paris to receive the instructions of masters like Gay-Lussac, Thénard, Dulong, etc., and soon after presented to the Paris Academy of Sciences his researches on fulminic acid, which directed Alexander von Humboldt's attention towards him, through whom Gay-Lussac was more especially interested in the young chemist, so that he took the latter into his private laboratory.

In 1824, Liebig received the appointment as professor extraordinary of chemistry at the University of Giessen, and two years later as ordinary professor. Here he established a model chemical laboratory and reorganized the practical instruction so that the little University soon became celebrated, attracting a large number of students. In 1845 he was made a Baron, and having declined all previous offers to other Universities, he accepted in 1852 a call to Munich, where he became professor of chemistry and conservator of the laboratory, and subsequently President of the Academy of Sciences and Conservator General of all the scientific cabinets belonging to the State of Bavaria.

Under Gay-Lussac's guidance already, he commenced his labors for perfecting the methods of elementary analysis, in which he subsequently succeeded so well that for more than 40 years nearly all ultimate analyses have been made according to his plans or by slight modifications of the same.

Liebig's researches are by far too numerous to be mentioned even in the limited space of this sketch; but there is hardly a section of organic chemistry which has not been enriched by his own personal labors, or by the investigations of his pupils performed under his supervision. His researches were undertaken not solely for the purpose of establishing or combatting a theory, but he was always inclined to point out the practical utility of the results obtained towards their technical application or to the vital affairs of man; his researches in agricultural and animal chemistry, his soup for infants, extract of meat, etc., afford abundant proofs of the latter, while many of the industrial processes now in use were either elaborated by him or are but slightly modified from his suggestions. Many of his investigations were made in conjunction with other chemists, some of the earlier with Pelouze; but particularly fruitful were his joint labors with Wöhler, who, his senior by three years, is still active at Göttingen.

Liebig's researches were published in Comptes Rendus of the Paris Academy, in the Journal de Chimie et de Physique, in the Journal de Chimie Médicale, in Poggendorf's Annalen, etc., but particularly in Annalen der Pharmacie, the title of which was in 1840 changed to Annalen der Chemie und Pharmacie and which has been edited by Liebig and Wöhler since 1838, of late years assisted by younger chemists.

Such fruitful and important results of his scientific labors were universally recognized, resulting in his election as honorary member of most learned societies, among them also of the Philadelphia College of Pharmacy.